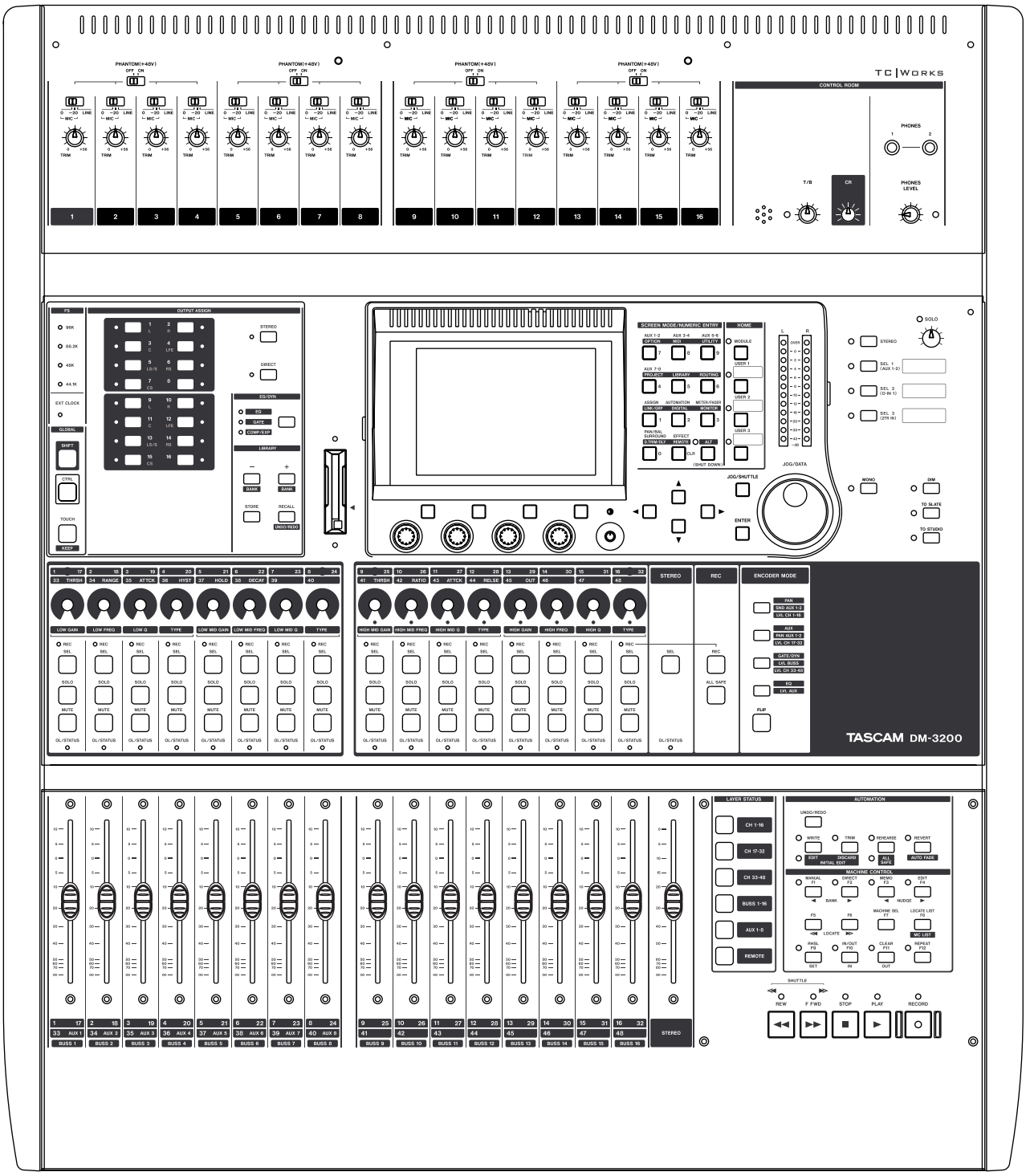
TASCAM

TEAC Professional Division

D001865710A

DM-3200

Digital Mixing Console



OWNER'S MANUAL

IMPORTANT SAFETY PRECAUTIONS

For U.S.A

TO THE USER

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residental area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION
Changes or modifications to this equipment not expressly approved by TEAC CORPORATION for compliance could void the user's authority to operate this equipment.

For the consumers in Europe

WARNING
This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Pour les utilisateurs en Europe

AVERTISSEMENT
Il s'agit d'un produit de Classe A. Dans un environnement domestique, cet appareil peut provoquer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre des mesures appropriées.

Für Kunden in Europa

Warnung
Dies is eine Einrichtung, welche die Funk-Entstörung nach Klasse A besitzt. Diese Einrichtung kann im Wohnbereich Funkstörungen versursachen ; in diesem Fall kann vom Betrieber verlang werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.

CE Marking Information
a) Applicable electromagnetic environment: E4
b) Peak inrush current: 8A

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.
Model number _____
Serial number _____

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. Grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

- Do not expose this apparatus to drips or splashes.
- Do not place any objects filled with liquids, such as vases, on the apparatus.
- Do not install this apparatus in a confined space such as a book case or similar unit.
- The apparatus draws nominal non-operating power from the AC outlet with its POWER switch in the off position.
- The apparatus should be located close enough to the AC outlet so that you can easily grasp the power cord plug at any time.
- An apparatus with Class I construction shall be connected to an AC outlet with a protective grounding connection.

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Contents

1 —Introduction

2 —Basic operational concepts

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List of Figures

This section provides an overview of the features and facilities provided by the DM-3200. It also includes an overview of the operational procedures involved when using the unit. It is important to read this section to gain a basic understanding of the way that the DM-3200 works before proceeding with setting up and using the unit.

The DM-3200 provides you with a new and flexible approach to mixing and recording.

Designed to integrate with the latest Digital Audio Workstation (DAW) personal computer software as well as with standalone recorders, it can form the heart of any recording studio.

Full-sized motorized faders, sixteen rotary encoders with ring LED indicators, a large clear LCD display and ergonomically-placed dedicated controls help to make the DM-3200 intuitive, as well as powerful, to use.

Computer (DAW) integration

The DM-3200 can be used with a computer system: with the built-in USB port, which allows control of the DAW by the DM-3200, emulating popular controller hardware**.**

Additionally the optional FireWire expansion card (IF-FW), which provides all the USB functionality, and also allows multi-channel digital audio to be transmitted and received between the DM-3200 and the DAW application.

In this second method, the DM-3200 may be used as an outboard mixer, freeing the computer from this task, and reserving the DAW for audio editing, etc.

In both cases, the TMCompanion software can be used for management of the DM-3200. See the documentation accompanying the latest release of the software for full details of the capabilities of the software with the unit.

NOTE

Some of these features may not be available in the first release of the DM-3200 firmware.

Other key points

Since the DM-3200 is designed with a working environment in mind, full control-room and studio monitoring facilities, as well as talkback, are integrated.

The DM-3200 provides automation facilities which are independent of any external computer. Mix moves can easily be recorded, edited and replayed in the DM-3200 in standalone mode, requiring only a timecode source (including the internal generator).

Sony P2 9-pin protocols are also provided, allowing control of other studio equipment from one central unit.

Working in multiple locations is easier than ever before, as the DM-3200 works the way you do; in terms of projects where all information and settings are stored together for future recall.

The data for projects is stored on industry-standard CompactFlash cards for easy offline storage, archival and transportation between facilities.

In addition, computer-aided librarian functions make it simple to juggle the demands of a busy studio schedule.

Top-quality internal effects reduce the need for large outboard racks and allow still further for portability of projects.

Timecode, word sync, MIDI, 9-pin serial control etc. are also provided for the widest possible integration with other equipment in your setup.

Please read this manual

Please take the trouble to read this manual carefully. Although every attempt has been made to make the DM-3200 as easy to use as possible, there are many features that may not be immediately obvious.

A little time spent studying the manual now may save you a lot of time and effort later on.

About the DM-3200

The DM-3200 provides a fully comprehensive range of I/O facilities. Almost all inputs and internal busses are “soft”, allowing connections to be patched internally (naturally, routing configurations may be stored and recalled).

Inputs For analog input, the DM-3200 provides sixteen balanced inputs, with both high-quality mic amps, and balanced line connections as well as analog insert points (both mic and line connections may be made to the same channel at the same time, but only one may be used at a time). There are also four assignable send outputs and inputs for external loop effects.

The digital side comprises three TDIF I/O ports, as well as ADAT “lightpipe” I/O, and two pairs of stereo S/PDIF or AES/EBU inputs and outputs.

Two TASCAM-standard card slots provide I/O expansion capabilities, with a variety of digital or analog options being available, including a FireWire expansion card for direct high-speed bidirectional communication between a DAW and the DM-3200.

Channel modules The DM-3200 provides 48 channel modules. These may be freely assigned internally to the 16 buss modules.

Of these 48 channel modules, 32 are “full-function” modules with 4-band EQ, digital trim and phase, and full dynamics processing with compressor/expanders and gates. The other 16 are more basic in the facilities provided, but still provide full buss assignment and aux sends.

The first 32 EQ-enabled channels can have two sources (*input* and *return*), which may be freely assigned, and can be switched, depending on whether the project is in the recording or tracking stage. See the section on assignments (“Routing & assignment” on page 46) for details of how channel sources are assigned,

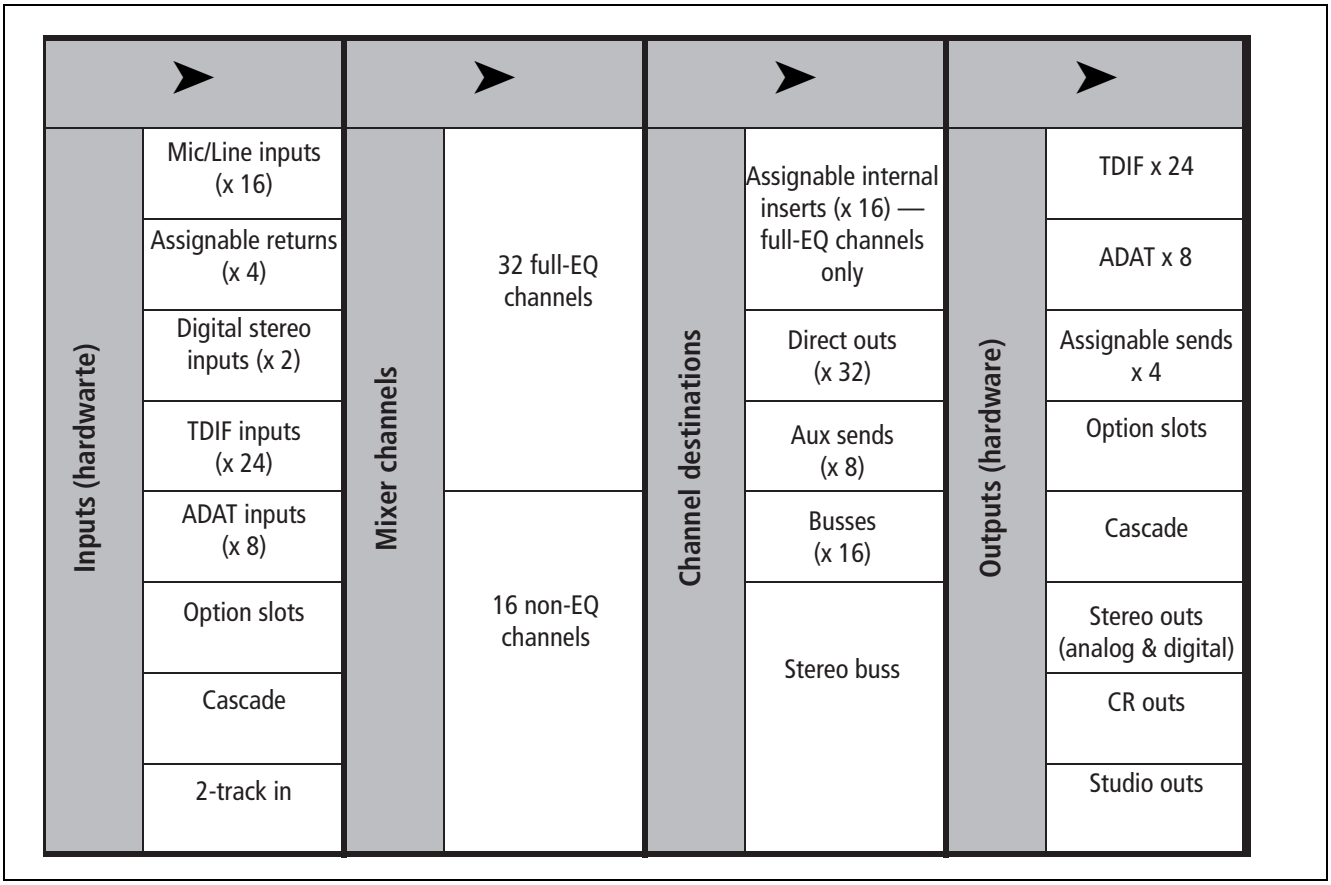


Figure 1.1: Basic logical components of the DM-3200[a]

a. Note that cascade connections are not available on the first release of the DM-3200 software.

Channel destinations There are 16 busses, eight aux busses, 16 assignable inserts (not to be confused with the "hard-wired" analog inserts on the input pre-amps) as well as the stereo buss module. Outputs from the channels can be assigned to these.

Furthermore, even when working at a sampling frequency of 88.2kHz or 96kHz, the DM-3200 retains the same number of channels and facilities as when operating at "conventional" sampling frequencies.

Outputs The sources for the outputs (built-in and optional slot) are then assigned to the actual physical outputs.

Physical outputs available include the built-in TDIF outputs (3 sets of eight outputs each), and eight channels of ADAT "lightpipe", as well as two stereo digital and one stereo analog sets of outputs.

Since buss outputs can be assigned to the TDIF and ADAT ports, this allows all the channels of a surround mix to be recorded together.

The option slot cards typically provide outputs as well as inputs.

Effects

The DM-3200 incorporates two high-quality digital effects, including a digital reverb programmed by TC Works.

Signals may be routed internally to these effects using busses or aux sends, and the returns fed back to mixer channels for inclusion in the mix. Alternatively, the assignable inserts may be used to insert and effect into the signal path of a channel module.

External effects can be looped through the assignable analog sends and returns (the returns can then be assigned to channels), or kept in the digital domain by using the stereo digital I/O facilities.

In addition, channels 1 through 32 can use built-in dynamic processors to provide compression or expansion either pre- or post-fader.

Gates can be inserted at the inputs, with a wide range of triggering options.

There are also analog inserts associated with each mic/line input, which allow additional processors to be inserted, before the DA converters. These insert points can also be used to bypass the DM-3200's internal mic amps and patch in external mic amps.

Unpacking the DM-3200

The DM-3200's box contains the items listed below. When opening the package please be certain all the items listed are included. If any items are missing, please consult your TASCAM dealer.

- The DM-3200
- AC power cable
- A 32MB CF card, pre-formatted, and installed in the card slot of the DM-3200.
- A USB cable
- A CD-ROM containing the utility software and documentation for the DM-3200 (Windows and Mac compatible).
- This manual
- The *Quick Reference Guide*
- Warranty card.

WARNING

The DM-3200 is a large and bulky piece of equipment. We strongly suggest that you get someone to help you lift it out of the carton and locate it in the position where it will be used.

Lifting properly—When lifting, be sure of your footing and grip. Bend your legs to get close to the DM-3200, keeping your back straight, and then lift by straightening your legs. Hold the unit close to your body. Avoid twisting or turning your body while lifting or carrying the DM-3200.

About the manual

Pushed controls on the DM-3200 are referred to as “keys”.

Their virtual equivalents displayed on screen are referred to as “buttons”.

Within this manual, the following typographic conventions are used:

- The name of a control or connector on the unit is written in the following way: **LINE/MIC**.
- Messages and text shown on the display of the DM-3200 are shown as follows: DIGITAL IN 1.
- The name of a control or connector on another unit is written in the following way: **AUX IN**.

What’s in the manual

1, “Introduction” (page 9) This section, providing an introduction to the DM-3200.

2, “Basic operational concepts” (page 16) This is important—it gives you basic information on the way in which you use the DM-3200’s controls and menu systems, etc. as well as providing an explanation of way in which the DM-3200 stores data.

3, “Connections” (page 38) Provides information on how to connect the DM-3200 to other equipment in your setup.

4, “Routing & assignment” (page 46) Since the DM-3200 is a “soft” console, with many patches and assignments made through software rather than physical connections, you should read this section to understand how the inputs and outputs of the DM-3200, as well as the internal connections, are linked together.

5, “Channel modules” (page 59) This section describes the modules which form the basic “building blocks” of the DM-3200. Most of the mixing work you do on the DM-3200 will use the functions described here.

This section also contains information on using the DM-3200 in surround modes.

6, “Effects” (page 81) The parameters controlling the built-in effects of the DM-3200 are described here and a list of the preset libraries may also be found in this section.

7, “MIDI” (page 91) This provides information on the MIDI capabilities provided by the DM-3200.

8, “Remote operation” (page 93) The DM-3200 is capable of acting as a remote control unit for a wide variety of external devices, including DAW systems. This section explains how to use these capabilities.

9, “Specifications” (page 102) Specifications of the DM-3200, together with a guide to the popup messages that appear on screen.

Also note that there are two separate publications in addition to this manual and the printed *Quick Reference Guide*: these cover the automation features of the DM-3200 and the TMCompanion software, which are provided as electronic publications in PDF format.

Notes and warnings

TIP

We give hints and tips on using the DM-3200 in this way.

NOTE

These notes provide additional explanations for special cases, etc.

CAUTION

Cautions show that you may lose data or performance may suffer if the instructions are not followed.

WARNING

These warnings should be taken very seriously. They describe situations which can cause injury, or damage to equipment if the instructions are not followed.

Special notes for touch-sensitive faders

The usual rules regarding precision electronic equipment naturally apply to the DM-3200. In addition, note the following that apply to the touch-sensitive faders:

- The faders need a human finger to operate their touch-sensitivity. Do not use a pencil, ruler, etc. to operate them. Even using your fingernails may not activate the touch-sensitivity.
- The humidity and temperature of your environment affects the touch-sensitivity of the faders. Under normal working conditions you should experience no issues. However, extremes of temperature and/or humidity may sometimes cause operational problems.

Copyright, etc.

The features of the DM-3200

This section describes the different areas of the DM-3200 as well as providing a guide to hooking up other equipment for use in your studio setup.

The front surface of the DM-3200 may seem a little intimidating at first, but it is actually remarkably simple, considering the functionality built into the unit.

Controls are logically grouped, depending on their function:

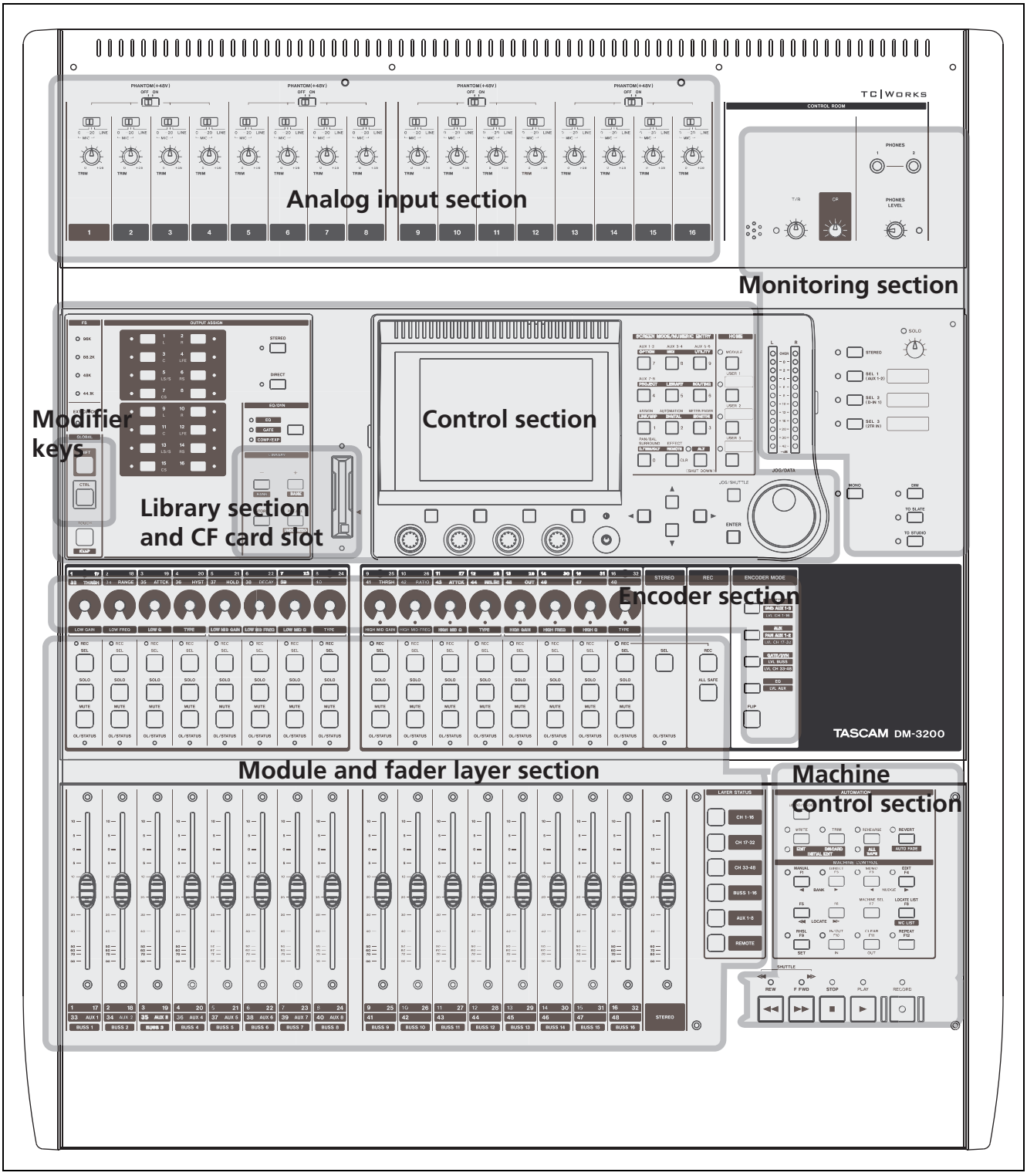


Figure 1.1: Overview of the DM-3200

Control section

This section contains the screen, the dedicated function keys, and the PODs, as well as the cursor keys and the data dial.

The operation of this section is described in more detail in “Basic operational concepts” on page 16, which you should read in order to gain an understanding of how the PODs, etc. are used.

Monitoring section

This section contains the controls for the control room and studio monitoring and cueing controls, as well as the talkback microphone and slate controls. The main stereo meters are also in this section.

See “Monitoring” on page 54 for details of this section’s operation.

Module & layer control section

The faders and module control keys are in this section, together with the keys used to select the different layers.

See “Fader layers” on page 18 for details of how the fader layers are used on the DM-3200.

The **SEL** keys are used to select the modules to be edited. This can also be done with the touch-sensitive faders.

Encoder section

The use of the encoders is described in “Encoders” on page 20.

See this section for a complete description of how the indicators surrounding the encoders are lit when the encoders perform different functions.

Modifier section

These are keys which when pressed and held, affect the behavior of other keys.

Library section and CF card slot

These keys perform recall, etc. of library entries. The CF card slot is used with a CF card to store projects and the data associated with these project.

Machine control section

These controls are used to control a device (external hardware recorder, or DAW) connected to the DM-3200 using MIDI, USB or the 9-pin serial control protocol.

See “Remote operation” on page 93 for details of how to set up and use these controls in your projects.

Analog input section

These are the built-in mic/line inputs and inserts. See the details later in this section (“Mic/line connections” on page 39) for details of how to connect and use them.

NOTE

Please take the time to read and understand this section, so that you understand how the basic navigation and parameter editing operations are performed.

Dedicated screen mode selection keys provide access to the different screens shown on the LCD display:

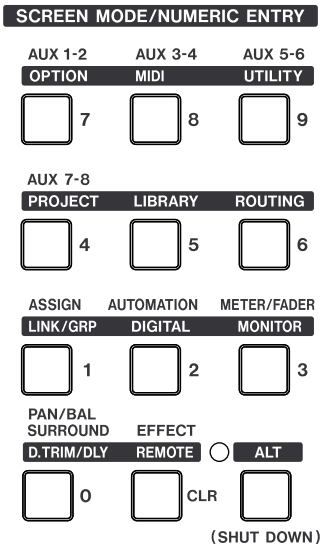


Figure 2.1: Control keys

Press one of these keys to access the screen marked above the key in "normal" (for example, key **4** is used to select the AUX 7-8 screen).

For the alternative screen available from many keys, press the **ALT** key so that the **ALT** indicator lights (see "Smart keys" on page 16 for details of the behavior of this key), and then the appropriate key to select the screen whose title is written in inverted characters above the key. For example, key **7** normally brings up the AUX 1-2 screen, but using this key with the **ALT** key brings up the OPTION screens. Note that some keys (e.g. the **LIBRARY** and **ROUTING** keys) are marked as "alternative" screens only, but these keys do not need the **ALT** key to be pressed to access their screens.

Many screens accessed with these keys include sub-screens or "pages". These sub-screens can be accessed using the POD keys ("The PODs" on page 18) or repeated presses of the same control key will cycle through these pages.

Use the cursor keys to navigate around the screen (sometimes, the dial can also be used to navigate).

Radio buttons (exclusive-or options) or checkboxes (options) are set and unset using the **ENTER** key when the cursor highlights the option.

When a parameter is selected, the dial is usually used to change the value.

For non-numerical values changed using the dial, usually **ENTER** should be pressed to confirm the entry. Note that while the parameter is being edited, the displayed parameter blinks on screen, and the cursor cannot be moved until the new value is confirmed with the **ENTER** key.

For a few parameters (chiefly connected with the remote unit location facilities), the number keys can also be used when the number is selected using **ENTER**. Confirm the entry of a value made in this way by pressing **ENTER**.

Smart keys

The DM-3200 features five "smart keys": the **ALT** key and four "talkback" keys (**DIM**, **MONO**, **TO SLATE** and **TO STUDIO**). When the status of any of these keys is off, and the key is then pressed very briefly and released, the status of the key, as shown by the indicator, is changed to on after the key is released (latching).

If the status of the key is off, and the key is pressed and held down, the status is only changed as long as the key is held down (non-latching).

If the status of one of these keys is on, the length of the key press makes no difference—the key status changes to off when the key is released.

What's on the screen?

For almost all the screens displayed by the DM-3200, there are two common areas. The first is at the top, and we explain that area here (the second is the row of labels which identify the POD functions (described in "Special controls" on page 18)).

These top and bottom areas are for display, and their contents are automatically determined (they cannot be edited).

On the top row of the top section, the left side shows (on top) the current encoder mode (see “Encoders” on page 20) and immediately below that, the currently-selected module or modules. To the right of this, the current automation settings (on or off, or global mode) are shown.

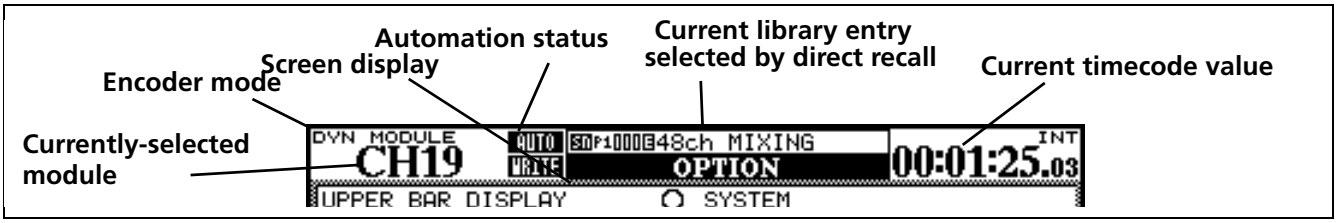


Figure 2.2: Explanation of the top line of screen displays

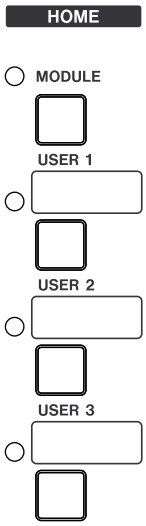
To the right of this, the name and number of the current library entry selected with the direct library functions are shown, and immediately below that, in larger letters, the title of the current screen.

Finally, on the right, the current timecode value (with the source as set up as preference) is displayed.

Note the timecode displayed can be changed as a setup option. See “UPPER BAR DISPLAY” on page 33.

Jumping to commonly-used screens

Within a project, it’s likely that you’ll find yourself using some screens more than others. One of the main such screens is the module screen, allowing you to view and change a module’s parameters at a glance.

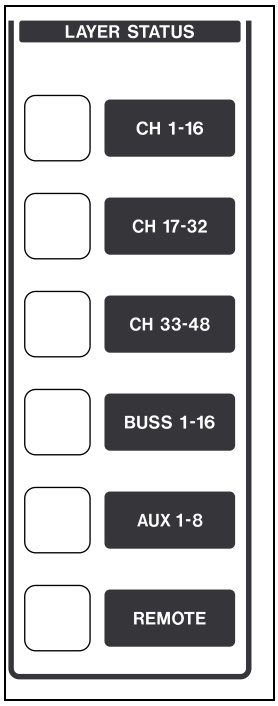


For this reason, a dedicated **MODULE** key, with indicator, is provided to the right of the number keys. The module parameters shown are those of the module selected using the **SEL** keys.

The three **USER** keys are used to set up three commonly-used shortcuts to screens used frequently within a project.

Setting a USER screen With the screen shown to which you want to make a shortcut, press and hold the **SHIFT** and **CTRL** keys (to the left of the unit). While holding down these keys, press one of the **USER** keys. Release all the keys. Next time you press that **USER** key (without the **SHIFT** and **CTRL** keys), the display shows the screen you set previously.

Fader layers



The DM-3200 has sixteen channel faders and encoders, but is capable of controlling 48 channels, in addition to the master aux send and buss levels.

The faders (and the encoders, when the encoders are associated with channels) are therefore arranged in layers, allowing different groups of faders to be accessed.

Use the **LAYER STATUS** keys (which light when the appropriate layer is active) to select these layers. These keys are located to the right of the master fader. When these keys are pressed, the faders move to the appropriate positions, reflecting the new fader layer.

The first three keys are used to select the channels (1 through 16, 17 through 32 and 33 through 48).

Following this, the next key selects the 16 busses.

The next key selects the aux sends, and uses the first eight faders for this purpose (faders 9 through 16 are disabled here).

The faders may be used for remote DAW control, etc. in **REMOTE** mode.

Special controls

The DM-3200 incorporates a few controls that are not found on every digital mixer and which therefore may be a little unfamiliar.

These are the PODs, which are located immediately below the display, and the 16 encoders, located above the channel strips.

The PODs

The DM-3200 has four encoder/key combinations (referred to as *PODs*) below the display. The function of these pods varies according to the current screen display.

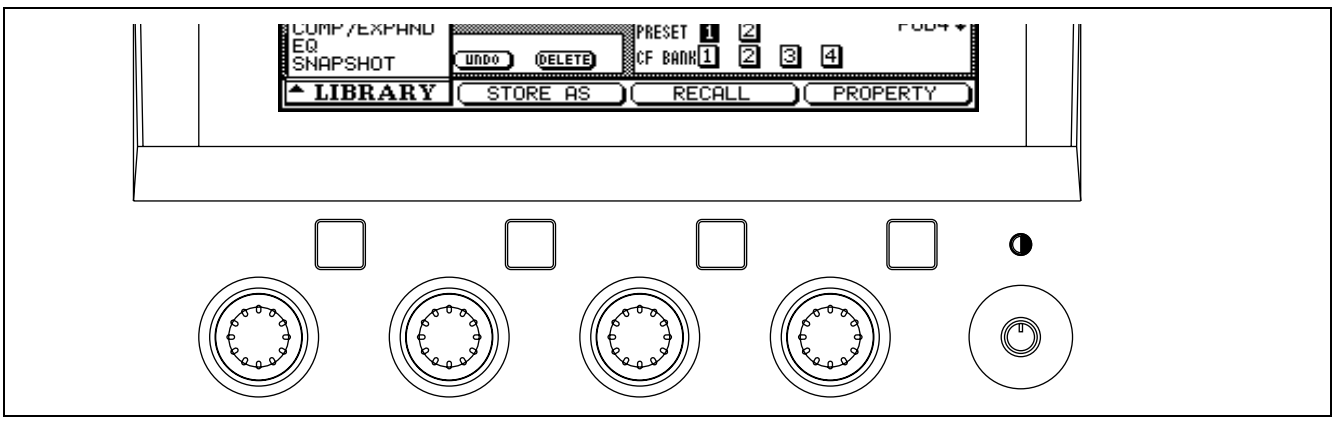


Figure 2.3: POD controls

Very often, in a screen with many controls displayed, the up and down cursor keys are used to move a highlighting box around the screen. These boxes highlight a maximum of four on-screen rotary controls, which are then controlled by the corresponding POD encoders (immediately below the on-screen controls).

Note also the contrast control to the right of the PODs.

TIP

You can change between a white on black display and a black on white display by using the **ALT** *+* **FLIP** *key combination.*

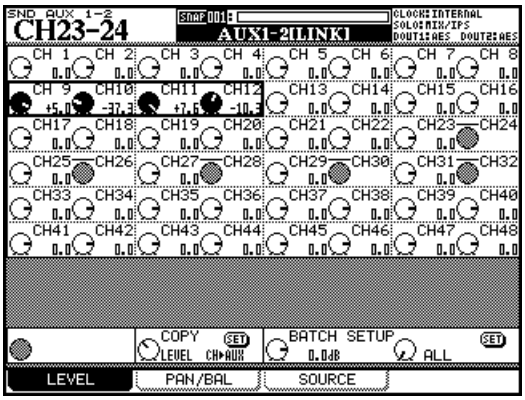


Figure 2.4: POD knobs used in a multi-control screen

POD knobs are also used on some screens to make a selection from a list. In these cases, the screen shows what POD knob should be used to change the selection:

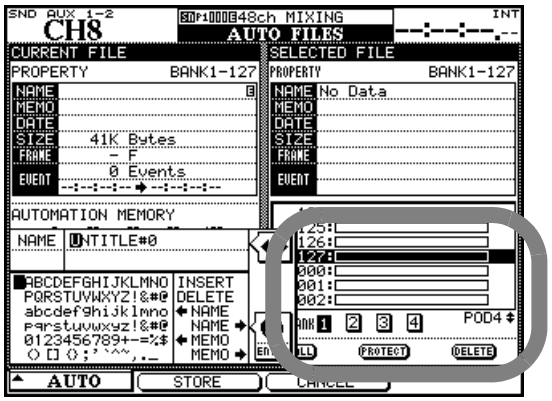


Figure 2.5: POD knob 4 used as list selector

The POD keys are often used as soft keys to perform an action, as shown on the bottom of the screen (on-screen buttons).

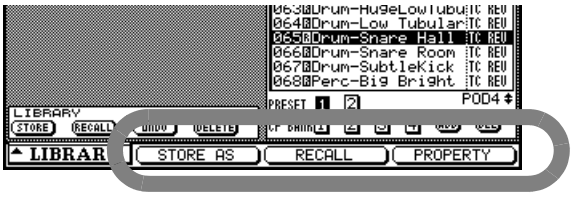


Figure 2.6: POD keys 2 through 4 used as soft keys

Other screens may use them as buttons which display a pull-up list of options. When the list is shown, the appropriate POD encoder, or the main dial, is used to navigate through the list, and the POD key or **ENTER** key is used to confirm the entry.

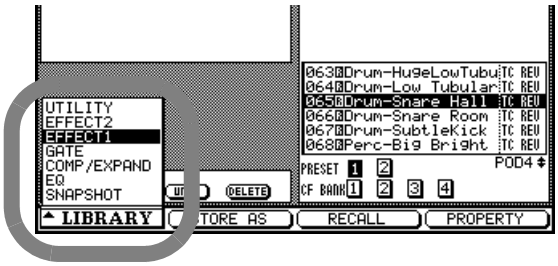


Figure 2.7: POD 1 used with a pull-up menu list

The POD keys may also be used to select "sub-screens" from within a major heading. In this case, simply pressing the appropriate POD key jumps to the next screen: as shown on the "tag":

Figure 2.8: POD keys used to select sub-screens

TIP

As well as using the POD keys to switch between tabbed pages, you can also make repeated presses of the key that was used to bring up the screen (with the **ALT** *indicator lit if necessary) to change between these pages.*

The POD keys may also be used to jump to another screen with a different function.

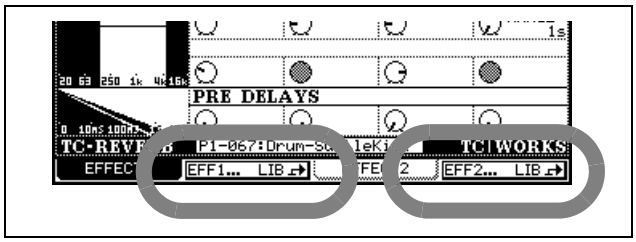


Figure 2.9: POD keys 2 and 4 used to jump to other screens (library screens)

TIP

The POD knobs change values fairly coarsely, but be pressing and holding the **SHIFT** *key (to the left of the unit), the POD knobs can be used for fine adjustment. This behavior can be changed (see "Encoder behavior" on page 23 below).*

Encoders

The 16 rotary encoders at the top of each channel have a number of functions, which are selectable using the four keys below the dial. There are three settings for each key, depending on whether the key is pressed alone, or with the **SHIFT** or **CTRL** key (at the left of the DM-3200, above module 1).

ENCODER MODE	Key pressed alone	With SHIFT key	With CTRL key
PAN / SND AUX 1-2 / LVL CH 1-16	Pan position in stereo mode(L-R pan in surround) for the selected fader layer	Aux 1–2 send level (selected fader layer)[a]	Channel 1–16 levels
AUX / PAN AUX 1-2 / LVL CH 17-32	Aux sends (selected channel)	Aux 1–2 send pan position (selected fader layer)[b]	Channel 17–32 levels
GATE/DYN / LVL BUSS / LVL CH 33-48	Dynamics settings (selected channel)	Buss levels	Channel 33–48 levels
EQ / LVL AUX	EQ settings (selected channel)	Aux send levels	—

Figure 2.10: Encoder functions

a. When Aux 1 and 2 are linked. Aux 1 level when they are unlinked.
b. When Aux 1 and 2 are linked. Aux 2 level when they are unlinked.

As you can see, by using these keys, you can view and set the levels of channels, busses, and aux sends, even when you are not in that particular fader layer.

Also, the channel aux send, dynamics processor and EQ setting modes are useful for convenient viewing and setting of a number of channel parameters at once.

TIP

If you are using aux sends 1 and 2 as a studio cue feed, the **SHIFT** *options provide a quick and easy way to set up the cue mix.*

Encoder mappings

The following table provides a reference to the use of the encoders in the different modes:

Pan mode Encoders 1 through 16 pan channel modules 1 through 16 in the active fader layer (i.e. they pan the channel whose fader is below the encoder).

Aux mode Encoders 1 through 8 set the correspondingly-numbered aux send levels for the selected module.

GATE/DYN dynamics processor mode

Encoders 1 through 6 control gate parameters: 1= threshold level; 2= gate range; 3 = attack time; 4 = hysteresis level; 5= hold time; 6 = decay (release) time.

Encoders 9 through 13 control compressor/expander parameters: 9 = threshold level; 10 = compression ratio; 11 = attack time; 12 = release time; 13 = output level.

EQ The encoders form four groups of four encoders, each group controlling a different band, where 1–4 control the low band, 5–8 low-mid, 9–12 high-mid, and 13–16 high.

Within each band, the first encoder (1, 5, 9, 13) controls gain; the second (2, 6, 10, 14) controls the frequency of the EQ band; the third (3, 7, 11, 15) controls the Q; and the fourth (4, 8, 12, 16) controls the band type.

SND AUX 1–2 Encoders 1 through 16 control the level of the aux send to 1 and 2 from the channel module immediately under the encoder when aux 1 and 2 are linked. When they are unlinked, they control the aux 1 send level.

PAN AUX 1–2 Encoders 1 through 16 control the pan level of the aux send to 1 and 2 from the channel module immediately under the encoder aux 1 and 2 are linked. When they are unlinked, they control the aux 2 send level.

LVL BUSS The 16 encoders control the levels of the correspondingly-numbered busses.

LVL AUX Encoders 1 through 8 control the master levels of the aux sends.

LVL CH 1–16, 17–32, 33–48 Encoders 1 through 16 control the fader levels of the modules in the fader layer selected by the **CTRL** + **ENCODER** key combination.

NOTE

For the BUSS, AUX and CH level settings, the encoders may be set to control the same modules as the current fader layer. In this case, turning the encoder will move the fader, moving the fader will be reflected by the encoder indicators.

Reading the encoder indicators

The encoder indicators change their pattern, depending on the parameter being controlled by the encoders.

Pan settings When the **PAN** key is pressed, the encoders control the panning of the channels/busses associated with the fader (not in surround modes).

When the encoders are in pan mode, the indicator patterns are as shown here.

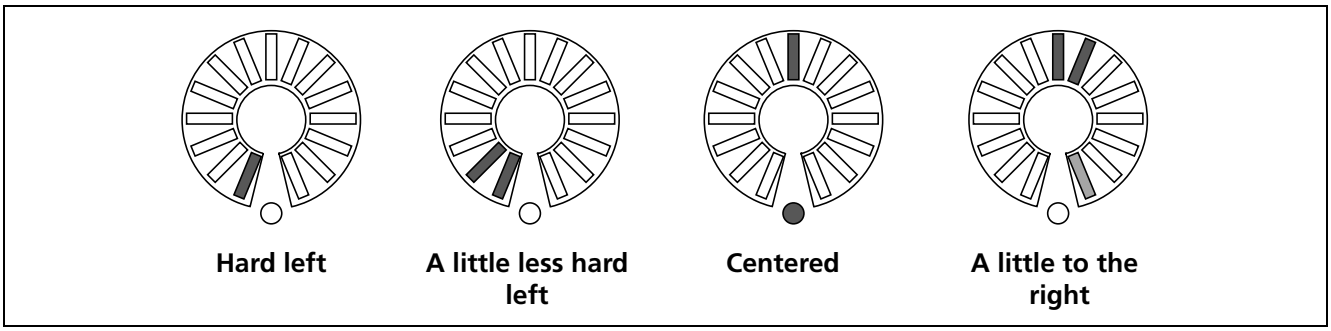


Figure 2.11: Encoders in pan mode

Note how the slight pan away from center half-lights the indicator at the end of the circle. This helps to indicate the fact that the pan position is not centered, even when the line of sight to the center indicator is blocked by the encoder knob.

EQ settings The **EQ** key assigns the 16 encoders to control the 4-band EQ for the module selected with the **SEL** keys. Each of the four bands may have its gain, frequency, Q and type controlled by the encoders as shown by the labels under the encoders.

The first encoder in each band is used to control the gain, the indicators are used as below. “Half-steps” are indicated by dimmed indicators. Note also the slight boost and cut settings, which give an indication, even when the venter is hidden by the control knob.

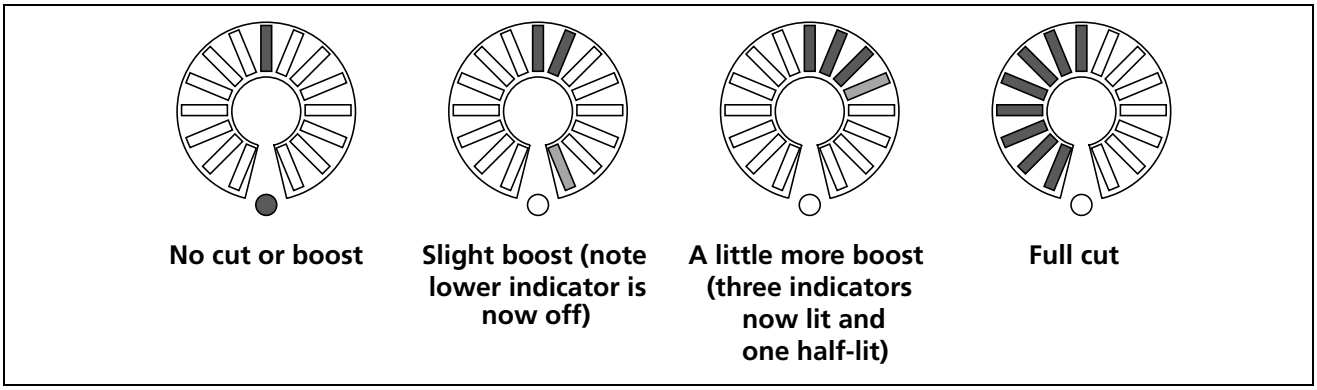


Figure 2.12: Encoders in EQ gain mode

The second encoders of each band in EQ mode show the frequency of the band in the following way:

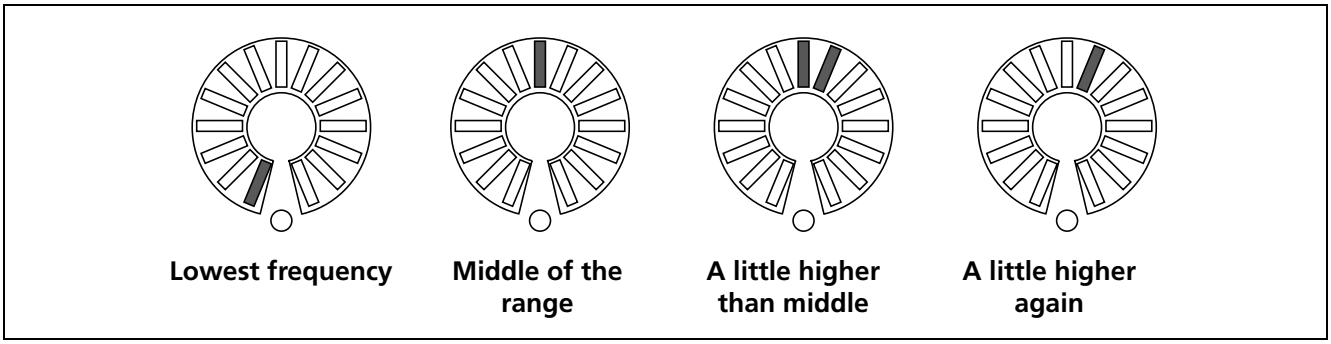


Figure 2.13: Encoders in EQ frequency selection mode

The third encoders of each EQ band are used to control the Q (bandwidth), as shown here:

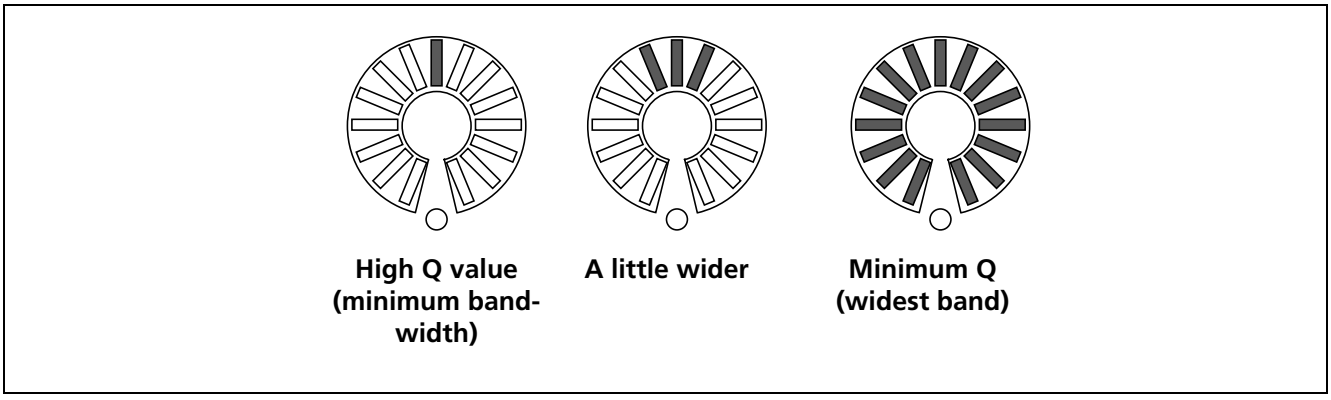


Figure 2.14: Encoders in frequency Q adjustment mode

The fourth encoders of each band are used to set the type (peak, notch, shelf, etc. of the band. An EQ band may have various options relating to the type of filter, and the encoders reflect this:

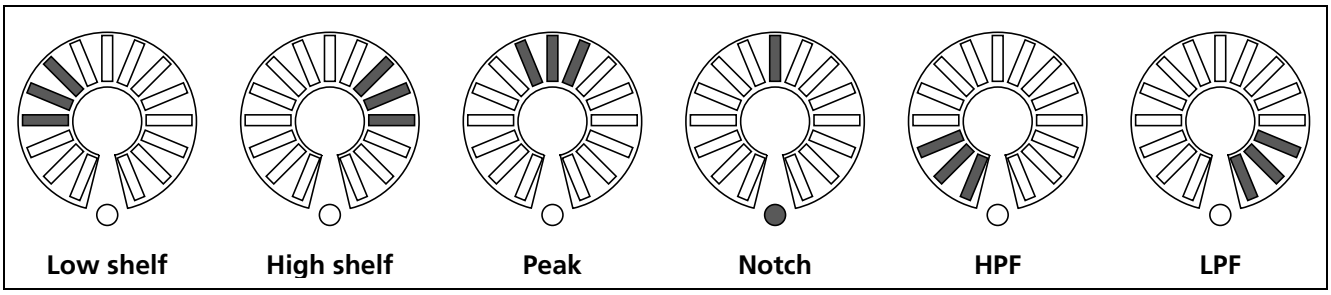


Figure 2.15: Encoders used to make frequency band filter type selections

Module levels and AUX sends The level is displayed up to the nominal level, and the nominal level is marked by the lower indicator lighting with all indicators up to the nominal position half-lit.

Levels above the nominal are shown by additional segments above the nominal segment lighting, and those below the nominal position changing to half-lit status, as shown in the illustration here.

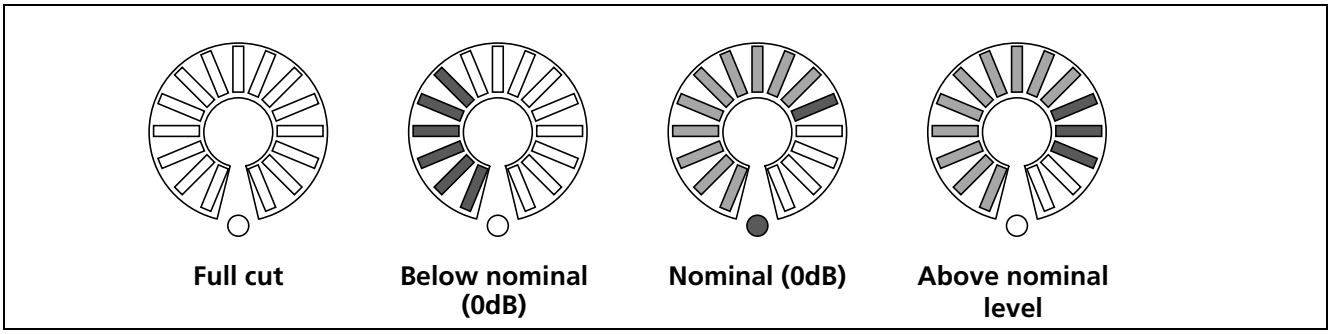


Figure 2.16: Encoders used to make module level and aux send adjustments

If the encoders are "flipped", the position of the channel faders is represented in the same way as for aux sends.

Dynamics settings These are typically "rotary" settings, with the higher levels lighting more segments.

One exception to this is the output level from the compressor/limiter, which lights the center indicator (and bottom center indicator) at a 0dB setting (no cut or boost). Cuts and boots light indicators to the left and right of the center, respectively.

The FLIP key The **FLIP** key exchanges the functions of the faders and the encoders, allowing the touch-sensitive faders to be used for automating tasks that might otherwise be performed by the encoders. When this key is pressed, the faders automatically move to reflect the new values assigned to them.

TIP

When setting up a cue mix on aux sends 1 and 2, for example, you can use the faders for this, while still keeping an eye on the main level settings (on the encoders).

Encoder behavior

Typically, the encoders, as well as the PODs, change values several steps at a time. To change the resolution of these controls, so that they change only one step at a time, press and hold the **SHIFT** key (at the extreme left of the unit) while turning the encoder.

However, there is an option allowing this behavior to be changed so that the unshifted behavior makes fine adjustments while the shifted behavior makes coarse adjustments.

With the **ALT** indicator lit, press key **2** (**OPTION**).

Use the cursor keys to move down in the OPTION screen to the ENCODER OPERATION item, which allows you to select either 1Step (fine) or Coarse (multi-step) as alternatives for the unshifted mode.

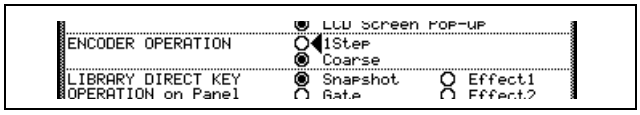


Figure 2.17: ENCODER OPERATION menu item

Press **ENTER** to select one of these options.

CF cards

Make sure that you have a CF card with sufficient space on it to hold the project (one with at least 32MB, such as the one supplied with the DM-3200, is recommended).

The DM-3200 does not retain unsaved project data when the power is turned off. Always save project data before turning off the DM-3200. See "Shutting down the DM-3200" on page 25. The capacity of the card determines the number of projects that can be stored on it (there is a maximum of 128 projects that can be stored on one card).

The size of a project depends on the number of library entries, and the amount and complexity of the automation data which forms part of the project.

Insert the card into the CF slot, pin socket edge first, and the maker's label towards the display (there is often an arrow printed on the card which should match the arrow printed on the DM-3200's top panel).

To eject a card, remove the TASCAM card cover, and press the square eject button just below the card slot.

CAUTION

To avoid possible data loss or corruption, we strongly recommend that you only remove cards while the DM-3200 is turned off. No physical damage will be caused to either the unit or the card if you insert or remove cards with the power turned on, though.

Note that the TASCAM card slot cover may prevent you from seeing whether a card is actually properly inserted or not. Always make sure the card is properly inserted after the mixer has been transported, or the eject button has accidentally been touched. We recommend keeping the card cover in place at all times, to avoid dust etc. contaminating the card slot contacts.

Formatting a new card

Cards must be prepared before use (including the one supplied with the DM-3200). Once formatted by the DM-3200, the card is formatted in FAT16 format, allowing it to be backed up easily to a personal computer fitted with a CF card reader.

1 **Enter the** UTILITY **screen, and jump to the** SYSTEM **page (you can continue pressing the UTILITY key until this page appears):**

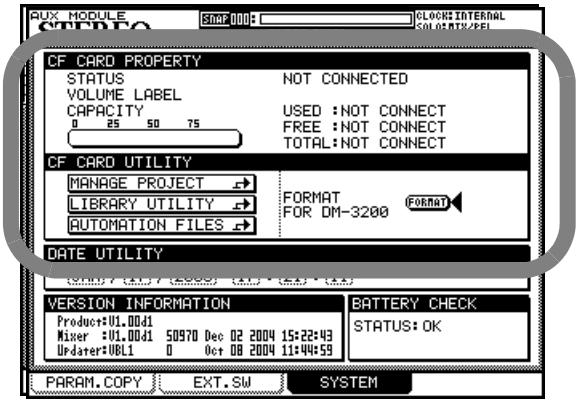


Figure 2.18: Formatting a CF card

2 **Move to the** CF CARD FORMAT **section, and use the ENTER key to press the on-screen** FORMAT **button.**

3 **A popup appears asking if you are sure you want to format the card. Press ENTER to continue (at any point before formatting starts, you can press a cursor key to exit).**

4 **One more popup appears, reminding you that the data on the card will be erased. Press ENTER to continue with the format operation.**

As the card is being formatted, a popup appears.

NOTE

As this popup reminds you, the power to the DM-3200 should not be turned off while the formatting operation is taking place, otherwise the card will probably be unreadable.

- **When the card has been formatted, a** Completed **popup appears briefly. The card can then be used.**
- **A failure in the formatting produces a message inviting a retry. If a card cannot be reformatted after a number of attempts, it is probably faulty, and you are advised not to use this card with the DM-3200.**

Note that this screen also provides a number of other features.

- You can jump from here directly to the project management (see "About projects and libraries" on page 26) or the library management screens (see "Library management" on page 30).
- The DM-3200 system date and time can be set here (see "Setting the date and time" on page 27).

Shutting down the DM-3200

IMPORTANT CAUTION!!! *Data associated with projects (automation, library entries, etc.) is not automatically stored on the card. If you turn off the DM-3200 without having shut down the DM-3200 properly, YOU MAY LOSE ALL YOUR DATA NOT STORED TO A PROJECT SINCE THE LAST SAVE!*

As when you work with computers, we strongly recommend that you save your project data to card frequently to avoid any possible data loss.

How to shut down the DM-3200 In order to shut down the DM-3200:

1 **Press and hold the SHIFT and CTRL keys (left side of the surface–GLOBAL section).**

2 **While holding down the key, press the ALT key of the number keypad.**

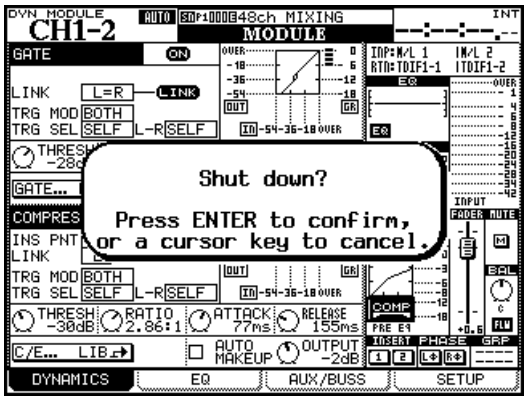


Figure 2.19: Shutting down the DM-3200

3 **A popup message (Figure 2.19, *Shutting down the DM-3200*)appears. Press ENTER to continue with the shutdown, or any of the cursor keys to cancel the operation.**

4 **When the all the data associated with the project has been saved, the screen shows an appropriate message. Use the switch on the rear panel to turn off the DM-3200.**

- **Alternatively, to reboot the DM-3200 without turning it off and on again, use the ALT + STOP + PLAY key combination.**

Starting up the DM-3200

When you power down the DM-3200 after working on a project, the project is automatically loaded, if the CF card containing that project is inserted (a message appears on screen at the completion of the project load).

See “About projects and libraries” on page 26 for more details about how the DM-3200 uses projects and libraries to manage and store data.

If the CF card is not inserted, or if a different (or unformatted) CF card has been inserted, an appropriate message is displayed (asking if you want to format a blank card, for example).

If you do not shut down the DM-3200 as described above before powering it down, when you next power it up with the project CF card installed, the screen shows a message warning you:

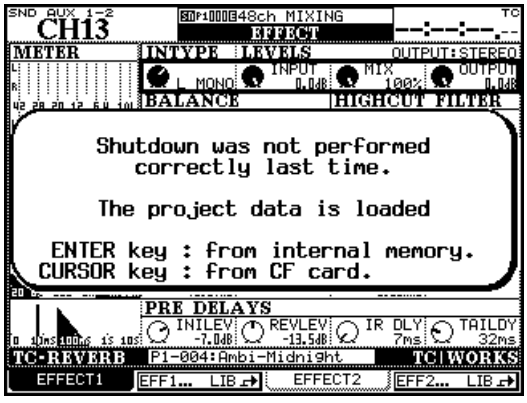


Figure 2.20: Powering up the DM-3200 with no previous shutdown

Pressing **ENTER** will reload the last data which was in the internal memory (the "resume data"), and pressing a cursor key will load the project, ignoring any changes since the last project save.

About projects and libraries

As mentioned earlier, the DM-3200 uses projects to store settings.

Projects contain system information, automation and routing information associated with a project, making it easy to return to a previous state when a project has to be conducted over more than one session.

When a new project is created, any of the following data from a previous project may also be associated with it (it is possible to pick and choose from this list):

- System data
- Snapshot (scene) data library
- EQ setting library
- Compressor/expander setting library
- Gate library
- Either or both of the effect libraries.
- Effect setting libraries

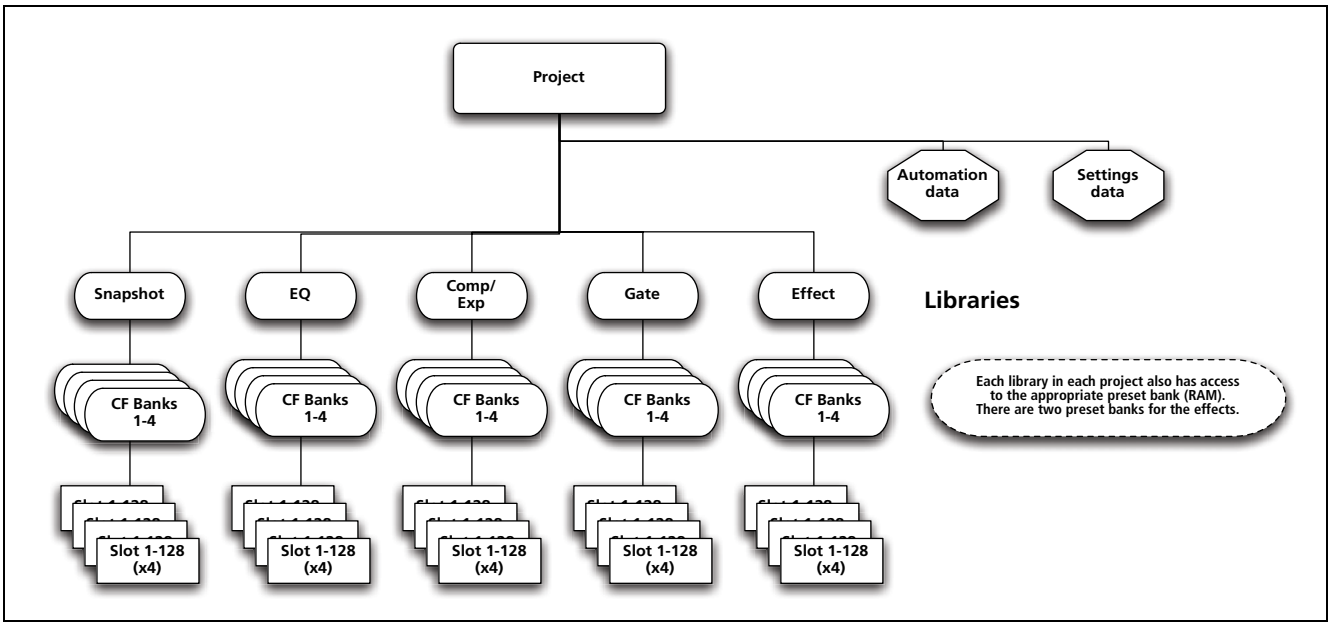


Figure 2.21: Project structure

Within each project, five libraries, each divided into four banks, contain the settings for the storable parameters mentioned above.

Each of these banks contains 128 "slots" to hold settings (numbered from 000 to 127).

In addition, the preset bank, stored in the DM-3200's memory, is available for recall of presets to be used as starting points for user settings. The effect library has access to two preset banks.

Individual slots and banks may be copied between projects after the project has been created.

Projects are stored on easily-transportable standard Compact Flash cards, allowing projects to be tracked in a project studio, and mixed and produced in a larger facility, for example.

Projects are date-stamped automatically (the DM-3200 contains a battery-backed clock) which helps you keep your work organized.

Setting the date and time

To set the date on the DM-3200, follow the steps below:

1 **Enter the UTILITY screen, and jump to the SYSTEM page:**

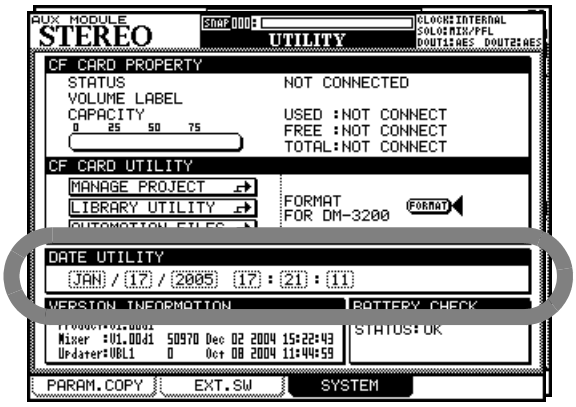


Figure 2.22: Setting the date and time

2 **Move the cursor to the** DATE UTILITY **section of the screen,**

3 **Use the cursor and dial to set the date and time.**

Note that the month is a three-letter abbreviation of the English month name (JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC) **and the hours are set in 24-hour ("military") format.**

4 **When you have set the values, press ENTER. The DM-3200 shows a confirmatory pop-up message** (Date change was applied)**.**

The calendar in the DM-3200 takes account of the different month lengths, including leap years (up to and including the year 2096—you may want to consider an upgrade after that time!).

More seriously, the clock is backed up by the DM-3200's internal battery. This battery should last for several years. In the event of the battery running low, (you can use the OPTION/PREFERENCES screen to check), consult your TASCAM supplier.

Creating a new project

When creating a new project, the project can be created from scratch, with manually selected sampling frequency, surround mode and mixer settings, taking the settings from a selected prior project that acts as a template, from preset library settings, or from the current settings.

1 **With the ALT indicator lit, press PROJECT so that the** NEW PROJECT **page is shown:**

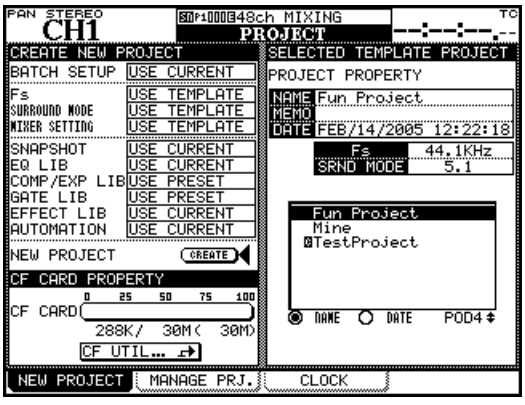


Figure 2.23: The NEW PROJECT page

2 **To set up a new project from scratch: set the current sampling frequency and surround mode for the project in the top left sections of the screen.**

Use POD 4 to select an existing project on the card to use as a template from which settings, etc. can be copied to the new project.

3 **You can use the current settings, preset settings or select the settings from the template using the wheel. Press ENTER to confirm these settings.**

4 **Use the cursor keys to select the options which include using the current settings, the preset settings, and the project selected at the right of the screen that can be used a a template. Press ENTER to confirm these settings as well.**

TIP

To set all options as CURRENT, TEMPLATE *or* PRESET, *use the* BATCH SETUP *at the top left as a short cut.*

5 **Move the cursor to the on-screen** CREATE **button and press ENTER, following instructions on screen until the project is created.**

Using a template Alternatively, if you already have projects stored on the card, you can select one of these to be used as a template. This is useful if your facility regularly handles a certain type of project with similar settings, as it allows you to set up the DM-3200 with known parameters and to maintain consistency between projects.

TIP

Use the radio buttons NAME *and* DATE *to sort the available projects by their name (alphabetic order) or the date of creation.*

Managing projects

Projects may be deleted, renamed, etc. as well as being copied (this last option allows you to keep different versions of the same basic project, with different EQ settings, library entries, etc.).

TIP

You can also use the software on a computer to read the data stored on the CF card, back it up to the computer, and save it to another card. Consult the documentation of the software to find out how to do this.

Use the MANAGE PRJ. screen (press the **PROJECT** key with the **ALT** indicator lit until this screen appears) to manage the and card-stored projects**:**

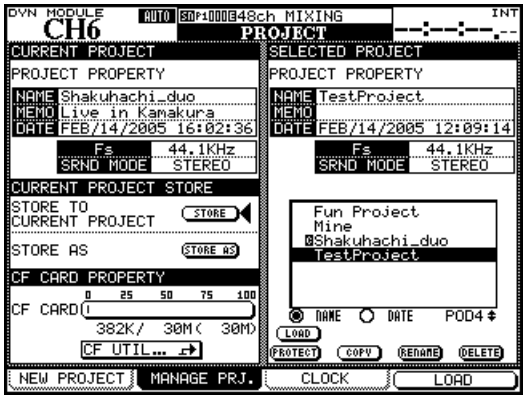


Figure 2.24: The project management page

The currently-loaded project is indicated by an inverted C character by its name.

Use the POD 4 encoder to scroll through the list of available projects.

Loading a project Use the POD 4 key as a shortcut key (LOAD) to load the highlighted project, or use the cursor keys to move the cursor to the on-screen LOAD button and press **ENTER**.

A popup message briefly appears while loading the project, and also when the load process is completed.

NOTE

The default internal project when loaded does not allow the storage of automation, or the storage or recall of library entries—its main function is to serve as a blank template for a card-stored library rather than as a working project.

Copying a project This action takes the highlighted project and creates a new project based on it. When the on-screen **COPY** button is pressed, the rename popup appears with a name and comments based on the source project. See "Naming library entries" on page 32 for details of how to enter and edit names.

Rename the project with a unique name (duplicate names are not allowed, and a popup message will inform you if you try to use an existing name) and when you are finished, press the on-screen STORE button (CANCEL cancels the copying process).

Deleting a project Move the cursor to the project to be deleted and press the on-screen DELETE button.

A popup appears asking if you are sure you want to delete the project. Press **ENTER** to delete, or a cursor key to cancel the delete process.

NOTE

Remember that deleting a project also deletes all the custom library entries (snap shot, effect and dynamics processor settings, etc.) associated with the project. Only delete the project if you are certain that you do not want any of the project data any more.

Renaming a project This is very similar to the copy procedure (see above) where the on-screen RENAME button is pressed to provide a new unique name for the project (as described in "Naming library entries" on page 32).

In addition to these facilities named above, there is an on-screen button that allows a direct jump to the CF card maintenance screen, allowing formatting of a card, etc.

Saving project data

- **From the** MANAGE PRJ. **screen, move the cursor to the on-screen** STORE **button.**

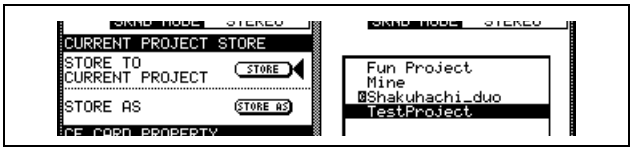


Figure 2.25: Storing a project

- **Press ENTER to store the current project settings. Appropriate popup messages appear, finishing with "**Completed**" when all save operations are complete.**

TIP

Get into the habit of doing this at critical points in your project.

You can also use the STORE AS button to bring up the naming panel (see "Naming library entries" on page 32), allowing the current project settings to be stored under a different name (similar to Save As... on many computer programs).

Library management

The following libraries are available within each project on the DM-3200 for storing and recalling commonly-used settings:

- Snapshots (scene memories)
- EQ settings
- Compressor/expander settings
- Gate settings
- Effect settings (for internal effects 1 and 2)

Up to four card-stored banks of each library type are available in each project. These banks are independent of each other and independent of the banks in other projects.

It is, of course, possible to copy library entries (or entire banks) between projects, as well as using existing projects as templates, allowing favorite effect settings, for example, to be used throughout a group of projects.

There is also an internal bank, containing read-only preset settings, which can be accessed by all projects.

In each bank, there may be up to 128 entries. The entries in the internal banks comprise read-only presets, which may be used unchanged, or recalled and used as the basis for original settings.

Library entries may be named and are automatically time-stamped, to provide a reference for just when and why a particular effect or setting was created.

Management of the library banks and the library entries contained in them is done from within a special utility screen accessed from a pull-up menu.

Note that all libraries are very similar in their basic operation, and differ only in details. If there are any specific differences relating to an individual library, they are described in the appropriate section of the manual.

To enter the library management screen, insert a formatted CF card (or insert a blank card and format it—see “Formatting a new card” on page 24) and press the **LIBRARY** key:

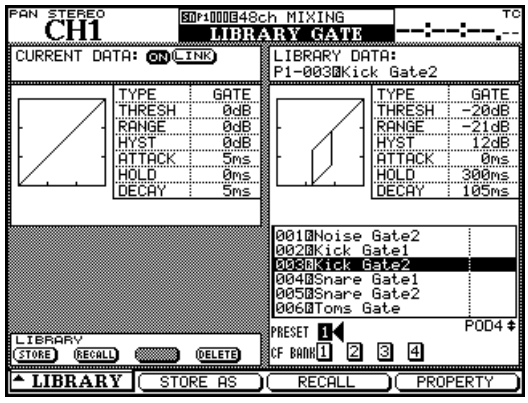


Figure 2.26: Library management (gate library shown as example)

Use the POD 1 key to pull up the menu which allows a jump to the appropriate library.

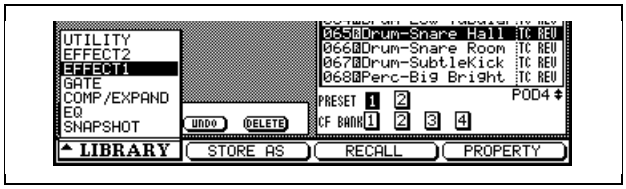


Figure 2.27: Library selection pull-up menu

Use the POD 1 dial to highlight the required option in the menu, and the POD 1 key or **ENTER** key to select the highlighted option.

In most library screens, a small graphical representation of the currently-loaded setting (snapshot, EQ setting, etc.) occupies the top left of the screen, while the top right part of the screen is used to show a corresponding representation of the currently highlighted library entry.

Using library banks Select the bank within the current project by using the cursor keys to highlight the PRESET or CF BANK to be used, and pressing **ENTER**.

This bank is used to recall a preset or previously stored setting or to store the current settings.

- Current data is always stored on the left side of the library screen, and the library data in the currently-selected bank and slot is shown on the right.

Bank selection can also be done by pressing the **+** and **–** keys to the left of the display in the **LIBRARY** section with the **SHIFT** key pressed, when the current banks is selected for this purpose in the OPTION screen.

Viewing library entries POD 4 is used to scroll through and highlight the library entries in the currently-selected bank. The on-screen representation changes as the entries are highlighted. POD 4's key can be used as a "soft key" here to bring up a popup with the properties of the highlighted entry.

POD 2 brings up an edit screen, allowing the title, etc. of the library entry to be edited (see "Naming library entries" on page 32).

Recalling library entries When a library entry is highlighted, using the **RECALL** key to the left of the display recalls the entry. Settings change to that of the entry. POD 3 switch or the the on-screen RECALL button may also be used for this purpose (navigate to it and press **ENTER**).

The **+** and **–** keys can also be used (without the **SHIFT** key) to recall the library entries within the bank in sequence.

TIP

By using the **SHIFT** *key and the* **RECALL** *key, the recall action can be undone. Pressing the* **SHIFT** *+* **RECALL** *key combination after an undo operation will redo the recall action.*

Storing library entries The current settings can be stored as a library entry by using the dedicated **STORE** key to the left of the screen. They will be stored to the slot in the library highlighted at the right of the screen. The on-screen STORE button may also be used for this purpose (navigate to it and press **ENTER**).

If this action will overwrite an existing library entry, this is shown as a popup message. Popup messages are also shown if the settings cannot be stored (maybe because there is no space on the card) or if the destination slot contains a read-only preset.

Use the POD 2 switch as a STORE AS button. It brings up the naming panel and the renamed entry can then be stored.

TIP

You can copy library entries directly between banks (see "Library utilities" on page 31), but you also can load a library entry from one bank, thereby making it the current entry, select another bank, and store the current entry to that bank.

Deleting library entries When a library entry is highlighted on the right side of the screen, you can delete it from memory, using the on-screen DELETE button.

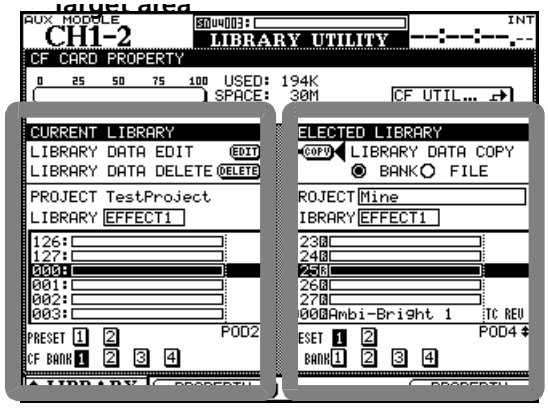
Navigate to the button, and press **ENTER**. A popup message appears, asking you to confirm that the library entry is to be deleted. Confirm the deletion with **ENTER**, cancel it with a cursor key.

An error message pops up if you try to delete a read-only library entry.

Library utilities

These utilities allow batch operations, etc. to manage library data and the CF cards.

Access this screen with the UTILITY option in the pull-up menu:



Target area **SOURCE area**

Figure 2.28: Library utility screen

This screen allows the bulk copying and management of library data between libraries and banks, as well as between projects.

The left side of the screen is used to show and set details the "target" destination of the copying and management process, and the right side is used for the source of the data to be copied. Naturally, when copying data from one library to another, both libraries must be of the same type—it is not possible to copy EQ settings to an effect library, for example.

Target parameters Within the "target" section of the screen, you can edit the properties (use the on-screen EDIT button) of the library entry highlighted in the scrolling list, in the selected bank.

Use the on-screen buttons at the bottom of the left side of the screen to select the bank to be used as a target.

Use the POD 2 encoder to scroll through the list of entries in the selected bank.

The on-screen DELETE button deletes the currently-highlighted library entry.

The target project is fixed as the currently-loaded project and cannot be fixed—to copy data to a project other than the one currently loaded, you must first load the desired target project to make it active.

However, from this screen it is possible to change the currently-loaded library type (this changes the library type on both sides, of course).

Source parameters The source parameters are similar to the target parameters described above.

You can select the library type (which changes both the source and target types), as well as the banks within the source library.

Also note that you can select another project from internal memory or card from which to extract library entries and copy them over to the target library bank.

Use the POD 4 encoder to scroll through the bank.

The actual copying is done by selecting either BANK (the complete contents of the selected source bank) or FILE (the highlighted entry in the source), moving the cursor to the on-screen COPY button and pressing ENTER.

Appropriate popup messages warn you about overwriting, failed copy operations, etc.

Also note the "fuel gauge" showing the used/free space of the CF card and the "jump button" allowing easy access to the CF card utility screen.

NOTE

Copying a whole bank overwrites the whole contents of the target bank. For example, if the target bank contains 99 entries, but the source bank from which the copy is made contains only one, after the copy the target bank will contain one entry only.

Naming library entries

When naming library entries, projects etc., the following method is used to enter new names, or edit existing ones. Names and memos of up to 16 characters can be stored**:**

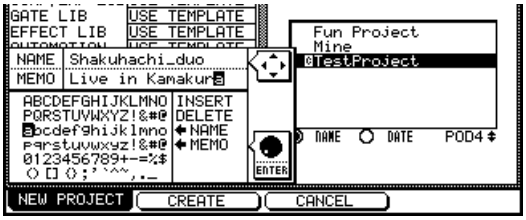


Figure 2.29: Setting and editing titles and memos

- **Use the cursor keys to move left and right within a title.**
- **Use the wheel to navigate around the character palette, and press ENTER to enter the highlighted character at the title's cursor position.**
- **The character palette also contains an** INSERT **and a** DELETE **symbol. When the wheel is used to highlight these, and ENTER is pressed, a blank space is inserted, or the current character is deleted, respectively, at the title cursor position.**
- **Library naming screens also contain** ←NAME **and** NAME→ **fields (and sometimes also contain** ←MEMO **and** MEMO→ **fields) which are used to transfer the stored name to the edited name or the edited name to the stored name respectively. Highlight the appropriate field and press ENTER to perform the copy.**
- **When the characters of the title have been entered, press the on-screen** STORE **(POD 2) to enter the name and store the library entry (or project). POD 3** (CANCEL) **cancels the naming process.**

Options

The OPTIONS screens allow you to set preferences to suit your working style. There are three option screens, all accessed through the **OPTION** key.

The SETUP and PREFERENCES screens set general parameters relating to the operation of the DM-3200, while the SOLO screen, as its name suggests, is concerned with solo operations.

SETUP screen

Press the **OPTION** key until the SETUP screen appears. Use the cursor to navigate around the checkbox and

radio button parameters, and the **ENTER** key to select and de-select settings.

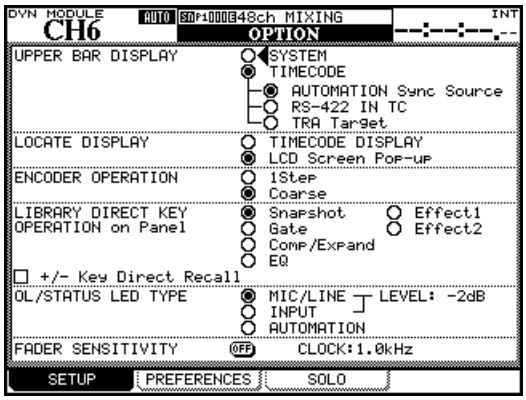


Figure 2.30: The SETUP option screen

UPPER BAR DISPLAY This parameter has two options: TIMECODE and SYSTEM. When set to TIMECODE, the top right field of the display shows incoming timecode, and when set to SYSTEM, certain system parameters (clock source, solo mode, etc.) are displayed.

Figure 2.31: Display top line set to SYSTEM

The source of the timecode shown in this way is also selectable between the timecode used for automation sync (AUTOMATION Sync Source), timecode received at the 9-pin serial port (RS-422 IN TC), and any other timecode received.

TIP

The TASCAM Mixer Companion software can also display the timecode in a window on a personal computer.

LOCATE DISPLAY mode This parameter determines how a location entry will be shown on the display: in the timecode position (TIMECODE DISPLAY) or as a separate popup display in the center of the screen (LCD Screen Popup).

ENCODER OPERATION mode When using the encoders (“Encoder behavior” on page 23), or the PODs, the parameter being edited may sometimes have too many values to allow easy setting using the encoder (for example, there are 127 different pan positions). Using the 1Step setting, one “click” of the encoders corresponds to one step in the parameter values. Using the Coarse option allows the changing of the parameter values to be accelerated, with fewer clicks of the encoder. See also “Encoder behavior” on page 23.

LIBRARY DIRECT KEY OPERATION This parameter controls the type of library accessed by the **RECALL** and **STORE**, and the **+** and **–** keys in the **LIBRARY** section to the left of the screen. There are six choices: Snapshot refers to the overall mixer settings, Gate to the gate libraries, Comp/Expand to the dynamics processor settings for gate and expander effects, EQ to the equalization setting library, and Effect1 and Effect2 to the first and second internal effector settings, respectively.

If the +/- Key Direct box is checked, this allows instant recall of a library entry selected using the **+** and **–** keys.

OL/STATUS LED TYPE The **OL/STATUS** LED indicators above each fader can serve one of two purposes: firstly, if either of the two “overload” options (MIC/LINE or INPUT) is selected, they act as overload or signal detection indicators (depending on the setting) when the input level exceeds the level set in the LEVEL field (OVER, 0, –2, –4, –6, –8, –10, –12, –18, –30 or –42 (dB)).

This status can be set for either the MIC/LINE inputs 1 through 16 or for the INPUT associated with the module, using the appropriate radio buttons.

Set the level for the overload lighting by moving to the value, pressing the **ENTER** key, turning the dial to set the value and pressing **ENTER** to confirm the value.

Otherwise, if the AUTOMATION option is selected, these indicators show the current automation status of the channels, as explained in the separate *Automation Manual*.

FADER SENSITIVITY This parameter allows you to specify the sensitivity of the faders, as used in the automation process.

The DM-3200 touch sensing capabilities are dependent on the ambient humidity and environment. Depending on these factors, it may sometimes happen that faders which have been touched are not recognized as having been touched, or the faders are recognized as having been touched when they have not actually been touched.

The value of the sensitivity is set by default to 4.0k, but you may wish to set it to any of the following values: 1.0k, 1.5k, 2.0k, 2.5k, 3.0k, 3.5k, 4.0k (Hz). High values mean higher touch sensitivity.

While the FADER SENSITIVITY on-screen button is switched ON and this screen is visible, touching any of the faders with your fingers will illuminate the **STATUS/OL** indicator for as long as the fader is touched. This provides a useful check for the sensitivity of the faders.

PREFERENCES

The following general working preference settings are available from this screen:

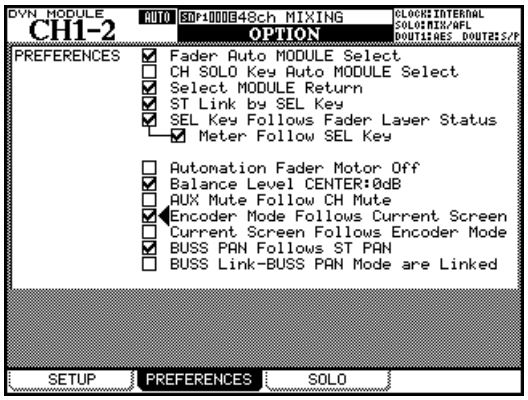


Figure 2.32: The PREFERENCES screen

Fader Auto MODULE Select When enabled, this option allows a module to be selected whenever its fader is touched, in addition to the usual method of pressing the **SEL** key. In some screens, when this option is enabled, this may only mean that the module shown at the top left of the screen changes when its fader is touched.

CH SOLO Key Auto MODULE Select When this is enabled, soloing a channel using the **SOLO** key brings up the MODULE screen.

Select MODULE Return When checked, this option allows the MODULE screen of the appropriate module to appear if the **SEL** key of the module is pressed and held for about two seconds.

ST Link by SEL key When checked, this option allows the stereo linking of two adjacent modules (provided the left module of the pair is odd-numbered) by pressing and holding the **SEL** key of one module and pressing the **SEL** key of the other.

SEL Key Follows Fader Layer Status allows the setup of the automatic linking of the selected channel to the selected meter layer.

When this option is selected, if a channel is selected, the fader layer is changed, and then the fader layer is changed back again, the originally-selected channel is automatically selected.

For example, if this option is active, and **SEL** 2 key is lit with fader layer 1-16 active, fader layer 17-32 is then selected, **SEL** key 3 (channel 19) is selected, and then fader layer 1-16 is then re-selected, **SEL** key 2 will be active.

If the option is not active, no **SEL** key which is lit remains lit when the fader layer is changed.

Meter Follows SEL key When this option is checked, the meter layer automatically changes when the appropriate **SEL** key is pressed (see "Meters and faders" on page 79). The modes are as follows:

Fader layer	SEL keys	Meter layer
CH 1–16	CH 1–16	CH 1–24
CH 17–32	CH 17–24	CH 1–24
	CH 25–32	CH 25–48
CH 33–48	CH 33–48	CH 25–48
BUSS 1–16	BUSS 1–16	BUSS 1–16
AUX 1–8	AUX 1–8	AUX 1–8

Automation fader OFF When this option is active (checked), in automation mode, when the automated mix is being read (played back), the faders do not move.

Balance Level CENTER:0dB When two channels are linked together as a stereo pair, the pan controls change to a balance control. In the center position, the level may either be set to 0dB (checked) or a 3dB cut (unchecked).

AUX Mute follows CH Mute When this is checked, Aux sends from a channel are muted when the channel is muted.

Encoder Mode Follows Current Screen This option switches the encoder function automatically (see "Encoders" on page 20) when a relevant screen (e.g. an aux send global screen) is selected.

Current Screen Follows Encoder Mode The converse of the previous option; when the encoder mode is changed, the appropriate screen is shown.

BUSS PAN Follows ST PAN When checked, and the BUSS PAN mode is ON, this option allows the stereo pan channel control to control the balance between the odd and even busses. No effect in surround mode.

BUSS Link/BUSS PAN are Linked When checked, this option links the buss panning when a link is made between two busses.

SOLO

The solo modes on the DM-3200 can be set up in a number of different ways using this screen:

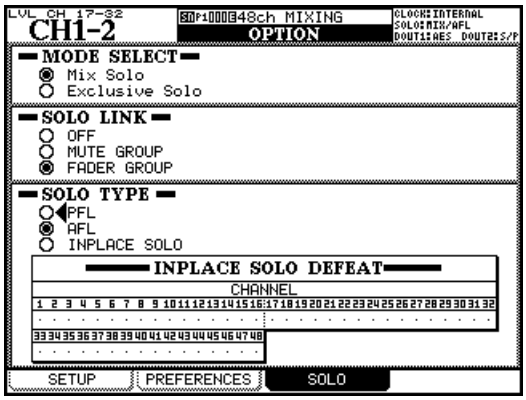


Figure 2.33: SOLO options

MODE SELECT Either Mix Solo or Exclusive Solo can be selected here. The Mix Solo mode allows a number of channels (that is, all whose **SOLO** keys are lit in solo mode) to have their outputs added together to the solo mix. The Exclusive Solo mode only allows one channel (the one whose **SOLO** key was pressed last) to be soloed at one time.

SOLO LINK This option allows the fader and mute groups to be used with the solo function. This is explained more fully in the solo part of the section describing monitoring. Briefly, if one of the group options (MUTE GROUP or FADER GROUP) is enabled, selecting a group master module solos or unsolos the whole of the group. If a group slave module is selected, the solo status of only that slave module is affected.

SOLO TYPE There are three options that may be selected here: PFL (pre-fader listen), AFL (after- or post-fader listen) and INPLACE SOLO. Briefly; the PFL option provides a way of listening to the signal before it is sent through the panpot and fader. The stereo outputs are unaffected (soloing is only done through the **CR** and **STUDIO** monitor outputs). An AFL selection will output the post-fader signal from the selected channels through the monitoring system. By contrast, soloing a channel in the Inplace Solo mode monitors the soloed signal(s) via the stereo and buss outputs while all the other signals are cut from the stereo and buss outputs.

INPLACE SOLO DEFEAT This option is a defeat option to prevent channels selected in this way from being muted when other channels are soloed. It can be used with a pair of effect returns, for instance, so that these effect returns will always be added in the inplace mix, together with those other channels selected for inplace soloing. Inplace soloing will output the soloed channel(s) from the stereo outputs, and cut all other channels. Use the cursor keys (or channel **SEL** key) to highlight a channel, and the **ENTER** key to change the status of the INPLACE SOLO DEFEAT setting.

Alternatively, use the **SEL** keys of the modules for direct selection and de-selection of the channels (use **ENTER** to make the setting).

Utilities

There are three UTILITY screens, accessed with the **UTILITY** key.

The first of these (PARAM COPY) provides a method of copying values between channel parameters.

The second (EXT. SW) determines the function of the external footswitch.

The last (SYSTEM) allows CF card management and date setting. These have already been described in "Formatting a new card" on page 24 and "Setting the date and time" on page 27 and are not described again here.

There is also a system update facility. See the TMCompanion software and its documentation for full details of how to update the DM-3200.

UTILITY copying

This screen allows the aux send levels and pan settings for a group of channels to be set up to mirror the settings made on the channel faders, and the other way around. This may be useful when setting up a studio monitor mix, for example, and the levels and pans of the aux sends used for the monitor mix should initially be set to the same as the channels.

1 **Press the UTILITY key.**

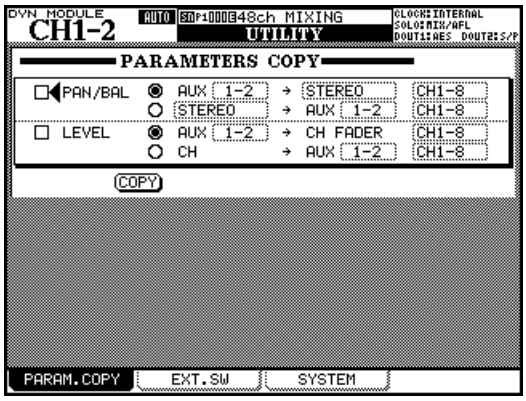


Figure 2.34: UTILITY copy screen

2 **Check either of the two checkboxes (**PAN/BAL **and/or** LEVEL**) to select the settings to be copied.**

3 **In either of the two boxes, select either the** AUX -> CH **or the other radio button (**CH -> AUX **for level, but variable for pan/balance).**

Naturally, it is not possible to select both in the same box, though it is possible to select CH -> AUX **in one box and** AUX -> CH **in the other.**

4 **Select the source and the destination parameters as explained here.**

- **For pan/balance copying, the aux sends and busses are available as linked pairs or an** ALL **selection is also available. Individual sends and busses are not available.**
- **The** STEREO **buss is available as a destination.**
- **The aux sends are selectable individually or as linked pairs as sources or destinations for level copying.**
- **Channels are divided into blocks of eight:** 1-8**,** 9-16**,** 17-24**,** 25-32 33-40 **and** 41-48 **and** ALL**. Individual channels cannot be selected. This applies to both pan/balance and level copying.**

5 **Move the cursor to the on-screen** COPY **button and press ENTER. A confirmation popup message appears.**

6 **Press ENTER again to confirm the copy, or a cursor key to cancel.**

If neither of the checkboxes is checked when you press the COPY button, an error message is displayed.

SWITCH utility

When a footswitch is connected to the rear of the unit, it can be set up using this screen in the following way:

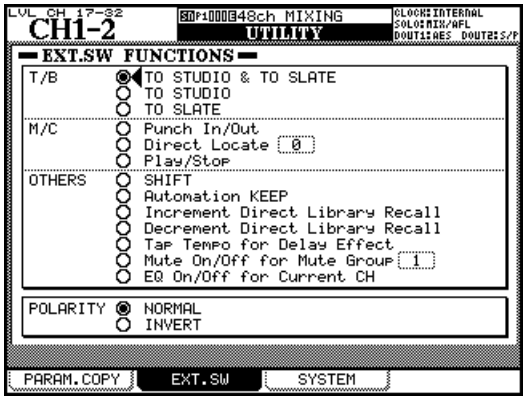


Figure 2.35: UTILITY external switch settings

Talkback The footswitch can be set to act as a hands-free talkback switch, with the destination being set from the following options: TO STUDIO & TO SLATE, TO STUDIO, and TO SLATE. In these cases, the footswitch acts in "smart mode" (see "Smart keys" on page 16).

Machine Control Especially in cases where the artist is also the recording engineer, the following hands-free transport operations can be very useful: Punch In/Out, Direct Locate [n], Play/Stop. See "Remote operation" on page 93 for full details of how these functions operate. In these cases, the footswitch operates in the same way as the front panel keys.

Other functions The following functions duplicate commonly-used keys. SHIFT duplicates the use of the **SHIFT** key (to the left of the unit). Automation KEEP performs a keep operation (see the separate *Automation Manual* for details). Increment Direct Library Recall and Decrement Direct Library Recall allow direct stepping up or down through the current bank of the current library (see also "Recalling library entries" on page 31). Tap Tempo for Delay Effect allows the footswitch to be used for tapping in the tempo used for a synchronized delay effect (useful if both hands are busy playing an instrument!). Mute On/Off for Mute Group [n] provides easy hands-free mute grouping for a specified group, and the EQ On/Off for Current CH allows easy A/B comparisons of EQ settings versus flat response.

Polarity This is not a function assignment, but allows the switch's polarity to be reversed (the DM-3200 expects a push-to-make momentary switch, but by flipping the polarity to INVERT, a push-to-break switch can be used instead).

This section describes how the DM-3200 connects to other equipment in your studio.

Since the DM-3200 is extremely "soft" in terms of the internal routing and patching, it is unlikely that you will need to spend a lot of time connecting and disconnecting equipment once you have your setup in place.

A patchbay is also probably less necessary with the DM-3200 than with many other mixers. See "Routing" on page 47 for full details of how the routing and assignment are managed.

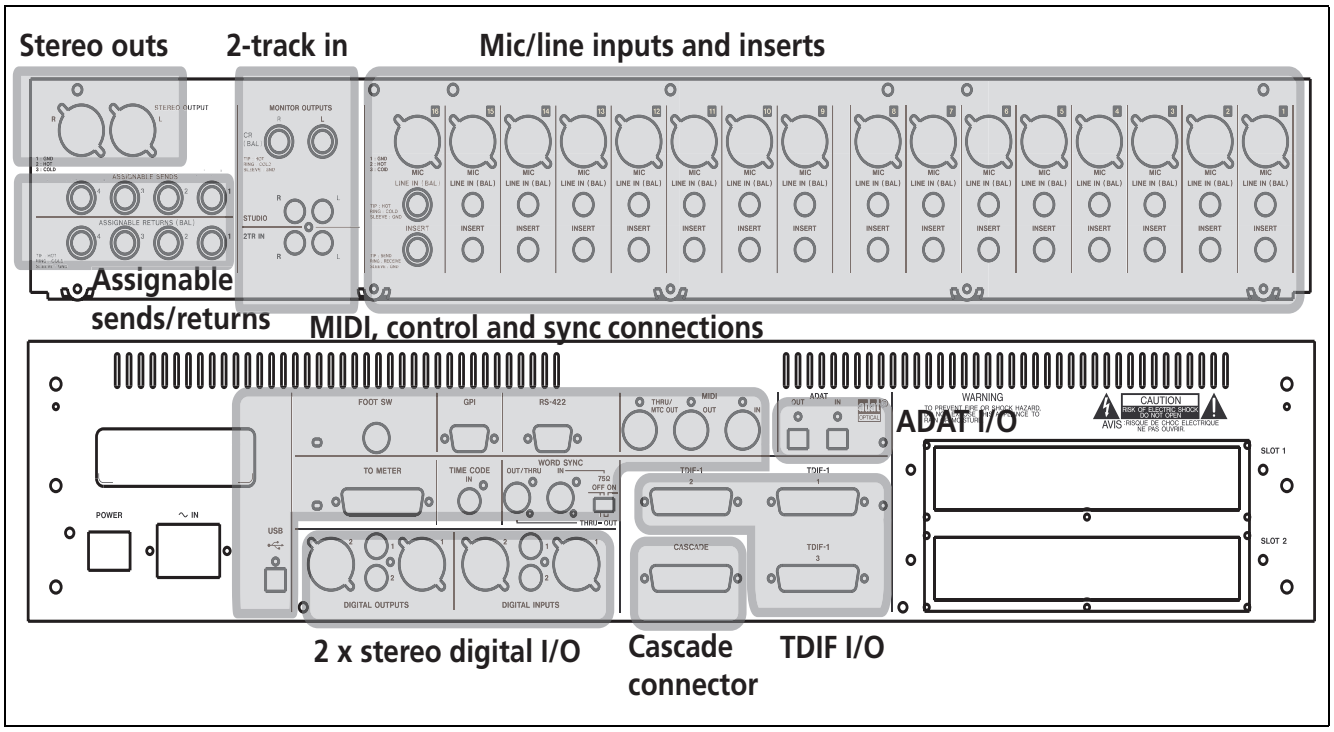


Figure 3.1: Overview of rear panel features

The illustration above provides an overview of the way in which the top and rear panel connections are arranged. Not highlighted are the power connector and switch, and the two option slots, which may be used to expand the capabilities of the DM-3200.

Analog connections

Mic/line connections

All these connections (microphone and line) are balanced. The XLR connections follow the standard of pin 1 ground, pin 2 hot and pin 3 cold. The TSR 1/4" jacks are tip hot, sleeve ground, ring cold (this applies to all balanced 1/4" jacks on the DM-3200).

Both the XLR mic connection and the 1/4" jack connection can be made at one time, but it is only possible to accept input signals from one source at a time.

The choice between the mic and line inputs is made with the **MIC/LINE** selector switches for each input channel

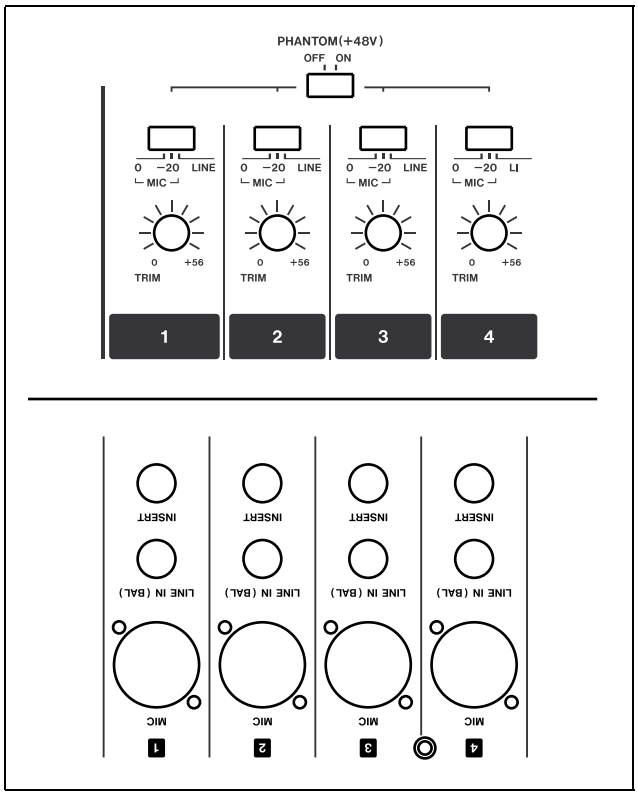


Figure 3.2: Analog channel inputs and controls

Note that the switch also has a **–20** position, providing a 20dB pad for high-output microphones.

The analog input signal level can be adjusted using the analog **TRIM** controls (there is also an internal software digital trim control for each input channel, independent of these analog controls).

A +48V phantom power supply is provided for balanced condenser microphones. This is switchable in groups of 4 (inputs 1–4, 5–8, 9–12 and 13–16).

WARNING

To avoid damage to the microphones and/or the DM-3200, do not connect or disconnect condenser microphones to and from the DM-3200 with the phantom power to that input switched on. Always switch the phantom power off before connecting or disconnecting condenser microphones.

Do not use unbalanced dynamic microphones connected to the XLR connectors with the phantom power turned on. This may cause damage to the microphones and/or the DM-3200.

The 1/4" balanced input jacks accept +4dBu connections, but you can use the **TRIM** controls to allow them to accept –10dBV connections (from synthesizers, etc.).

Note that if additional analog inputs are required, the optional IF-AN/DM slot card can be used to provide such inputs.

TIP

Signal/overload indicators for the input channels are selectable in the preferences screen. See "OL/STATUS LED TYPE" on page 33 for full details.

Channel inserts The analog inserts for each analog input channel allow you to use your favorite analog compressors/gates, etc. before the sound gets converted to the digital domain.

NOTE

*These are **not** the same as the "soft" (assignable) insert loops which are described in "Insert patching" on page 50.*

These 1/4" jacks are wired: tip send, ring return, sleeve common ground. The nominal send and return levels of these inserts is –2dBu which allows them to be used with a wide range of studio equipment.

2 TR IN This pair of unbalanced RCA jacks provides a –10dBV return for the analog outputs of a 2-track recorder connected to the DM-3200.

ASSIGNABLE RETURNS These are balanced 1/4" TRS jacks at +4 dBu (wired as described above). As the name suggests, they provide analog return inputs which can be assigned to a variety of sources (see "Routing" on page 47).

Analog outputs

The dedicated analog outputs are relatively few since it is expected that most signals will remain in the digital domain after they have entered the DM-3200.

STEREO OUT Balanced XLR connections (1 ground, 2 hot, 3 cold), which output the stereo buss signals, which can be used to feed the analog inputs of a 2-track recorder, or a specialist chain of analog devices used for mastering.

NOTE

There are no dedicated stereo digital outputs. The stereo buss may be routed internally to a variety of digital outputs in different formats. See "Output routing" on page 49 for details.

ASSIGNABLE SENDS These are balanced 1/4" TRS jacks at –2 dBu (wired as described above). As the name suggests, they provide analog send outputs which can be assigned from a variety of sources (see "Routing" on page 47).

Monitoring (CR OUTPUTS) A pair of balanced 1/4" jacks provides the feed to the stereo control room monitoring system (amp/speaker or powered monitors) at +4 dBu levels. The level is adjusted using the hardware **CR** control.

Monitoring (STUDIO OUTPUTS) These unbalanced RCA jacks provide a –10 dBV feed to the studio monitoring system. The level is controlled by software.

Digital connections

Digital audio I/O

TDIF I/O There are three 25-pin TDIF-1 connectors each carrying eight channels of input and eight of output. These can be used to connect DTRS recorders, etc. as well as other devices whose digital I/O conforms to the TDIF-1 standard.

WARNING

Make connections to these terminals only using approved TDIF cables. Use of any other cables will result in signal degradation, and may even damage equipment.

ADAT "lightpipe" OUT & IN These TOSLINK optical connectors carry eight output channels and eight input channels of audio respectively.

Connect them to appropriately-equipped equipment using standard optical digital audio cables.

CASCADE This is a special connector, used only to connect another DM-3200 unit to extend the capabilities of the DM-3200. This facility is not available in the first release of the software.

WARNING

Only use the special TASCAM cascade cable here. Use of any other type of cable may result in damage to the equipment.

Digital inputs and outputs There are two sets of stereo digital inputs and two sets of stereo digital outputs.

Each set comprises an unbalanced RCA connector (typically for use with S/PDIF equipment), and an XLR connector (typically for use with AES/EBU equipment).

Though connections can be made to both the RCA and XLR connectors together, only one can be used for input at any one time (output from these jacks is made in parallel). Selection is made in software.

We strongly recommend that to maintain signal quality, you only use cables designed for digital equipment.

Digital I/O setup

After the connections have been made, the inputs and outputs can be set up for use.

Press the **DIGITAL** key (**ROUTING** with the **ALT** indicator lit) so that the SETUP screen appears:

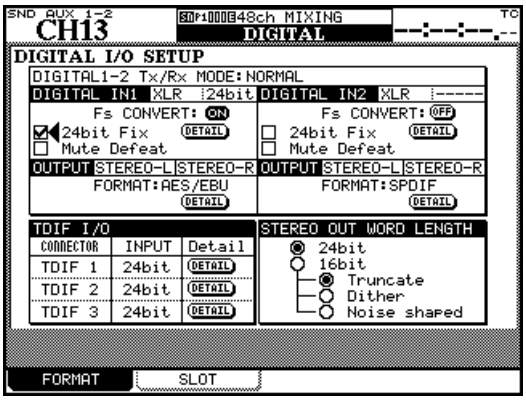


Figure 3.3: DIGITAL SETUP screen

This screen allows the viewing and changing of the parameters relating to the two digital audio inputs and outputs as well as the three built-in TDIF connectors.

There are a number of on-screen DETAIL buttons which, when pressed, show a popup with details of the word length, sampling frequency data format, etc. of the appropriate input or output.

Digital inputs The word length (16BIT or 24BIT) and the input selected using the routing screens (XLR or RCA) are automatically determined and displayed.

Also, in the case of a "double-speed" input (that is, 88.2kHz or 96kHz), the display shows HISPEED, otherwise it shows NORMAL.

The DM-3200 includes a frequency converter, which is capable of taking an input frequency of 44.1, 48, 88.2 or 96kHz (±6%) and converting it to the project frequency. Use the on-screen FS CONVERT button to turn the converter on and off.

NOTE

The signal from any input used with a sampling frequency converter cannot be used as a sync clock source (see "Clock setting" on page 44).

The 24bit Fix checkbox allows the input of 16-bit data at these connectors and removes any inconsistencies associated with spurious status information, fixing the word length at 24 bits.

Mute Defeat The Mute Defeat checkbox should normally be left unchecked. In the event of bad digital audio data being received (out of range, or corrupt, etc.), the DM-3200 will usually mute the input to prevent possible damage to monitoring equipment. However, this automatic muting can be turned off with this checkbox. Some AES/EBU sources produce data which does not quite conform to the AES/EBU standards, and will cause the DM-3200 to reject these sources, and mute the input, even though such data is actually valid.

Note that an appropriate popup appears if invalid audio data is received, informing you of the type of error and the input at which the bad data is received.

The output channels are determined automatically (either as stereo or 2 x mono) according to the output routing (see "Output routing" on page 49, but the format is set between AES/EBU and S/PDIF using the dial and **ENTER** key.

The TDIF inputs automatically detect sampling frequency, etc. but you may want to set the word length (16, 20 or 24 bits) using the dial and **ENTER**. Note that the three TDIF terminals can take different word lengths.

Stereo output Finally, the format of the output from the stereo buss when it is routed to a digital output can be decided here. The word length can be set at 24 bits, or reduced to 16 bits.

If the word length of the digital stereo buss is reduced to 16 bits, there are three options available: Truncate, Dither, and Noise Shape.

A full discussion of the principles involved here is outside the scope of this manual. Many of the books from Focal Press provide excellent background information on digital audio, timecode issues, etc.

Slot card configuration

As mentioned, you can expand the capabilities of the DM-3200 with the optional slot cards available.

These cards are as follows:

IF-AN/DM providing eight channels each of A/D and D/A conversion. Referred to on screen as AD/DA Card. Can be installed in slot 1 or slot 2.

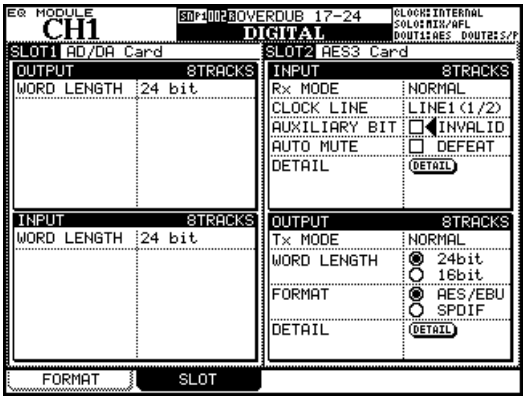


Figure 3.4: IF-AN/DM (at left) and IF-AE/DM (at right)

The parameters available allow the viewing (but not the setting) of the word length (for input and output) and the eight output tracks associated with the card.

IF-AE/DM providing eight channels of input and output in AES/EBU format. Referred to on screen as AES3 Card. Can be installed in slot 1 or slot 2.

The inputs and outputs can be set independently for normal operation or double-speed operation.

An on-screen DETAIL button allows the viewing of information related to each of the four stereo input and output channels (a popup appears on screen).

MUTE DEFEAT can be enabled or disabled for each of the four channels (see above for details of this).

IF-TD/DM providing eight channels of digital I/O in TDIF-1 format. Referred to on screen as TDIF-1 Card. Can be installed in slot 1 or slot 2.

The current status of the input and output channels is also shown on the screen.

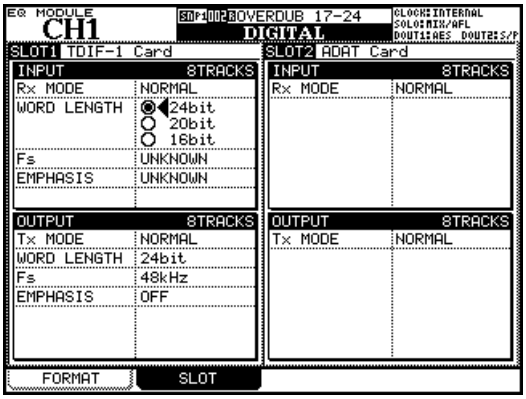


Figure 3.5: IF-TD/DM (at left) and IF-AD/DM (at right)

IF AD/DM providing eight channels of digital I/O in ADAT "lightpipe". Referred to on screen as ADAT Card. Can be installed in slot 1 or slot 2.

Other connections

MIDI connections (IN, OUT and THRU) Use these standard MIDI connectors to connect the DM-3200 to other equipment. The **THRU** terminal also functions as a MIDI Timecode output terminal.

This MIDI functionality can be used to provide either open or closed MMC loop control of remote devices, as well as allowing the DM-3200 to control other devices through its faders and encoders. See "MIDI" on page 91 for details.

NOTE

The USB connector provides MIDI to and from a host computer for DAW control, etc. There is no need to make a separate MIDI connection to and from such a computer.

RS-422 serial control terminal This 9-pin D-sub connector is used to provide control of suitably-equipped devices, using P2 protocol, etc. See "Remote operation" on page 93 for details.

TIME CODE This 1/4" unbalanced jack accepts linear SMPTE/EBU timecode for synchronization with other devices. Note that the DM-3200 does not generate linear timecode, and can neither accept nor generate vertical timecode.

WORD SYNC (IN and OUT/THRU) In any digital audio setup, it is important that there is one, and only one, word sync source.

WARNING

More than one such word sync source can cause serious problems, including possible damage to monitoring equipment.

The DM-3200 can act as a word sync master or slave (set up in software—see "Clock setting" on page 44). The switch allows the **OUT** to act as a **THRU** when the DM-3200 is receiving word sync signals, as well as enabling and disabling 75Ω termination on the input.

TO METER Use the cable provided with the optional meter bridge (MU-1000) to connect the meter bridge to this connector of the DM-3200.

FOOT SW Connect a standard momentary foot (or other) switch to this 1/4" jack. It can either be push-to-make or push-to-break, as the polarity can be changed in software.

For details of how to do this, as well as how to set up the footswitch, see "SWITCH utility" on page 37.

USB This is used to connect the DM-3200 to a host computer for bi-directional control. This is, the computer can control the DM-3200—see the documentation supplied with the TASCAM utility software—and the DM-3200 can be set up as a DAW controller, controlling the DAW software running on the host computer.

We strongly suggest that you use only the USB cable supplied with the DM-3200 to make the USB connection, and that this connection and disconnection are made with the DAW software, or any other software communicating with the DM-3200, not running.

Note that no drivers are necessary when using the DM-3200 with OS X or Windows XP.

Power input As always, check to make sure that the voltage requirements marked on the unit match your power supply. Use a properly grounded power supply, and connect the DM-3200 to it using a power cord which provides grounding facilities (such as the one provided with the DM-3200).

Clock setting

When the connections have been made to the DM-3200, you must select a clock source. The master clock source is also used to determine the sampling frequency for the whole project.

Remember that the DM-3200 can act as a clock source or clock master, but there must be only one master clock source in your studio setup.

Press the **PROJECT** key until the CLOCK screen appears:

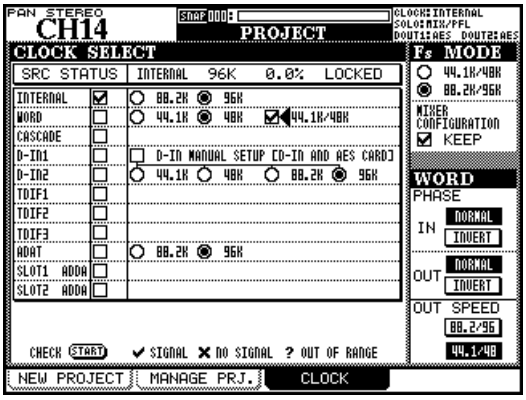


Figure 3.6: PROJECT CLOCK screen (high-speed)

Fs MODE The first item to be selected is the use of the high-speed or normal clock. When the lower 88.2K/96K (high-speed) option is selected, many of the 44.1K and 48K legends on the screen change to 88.2K and 96K respectively. In addition, in high-speed mode, the digital inputs are also available, and the number of available clock sources on the optional AES/EBU interface card (if fitted) is reduced:

In both this and the normal speed clock screen, the current clock status is displayed at the top of the screen (as shown above).

Checking the clock You can make a check of the system by moving the cursor down to the bottom of the screen and pressing the CHECK [START] button.

After confirming that you want to do this, a popup appears, informing you of the status of all potential clock sources.

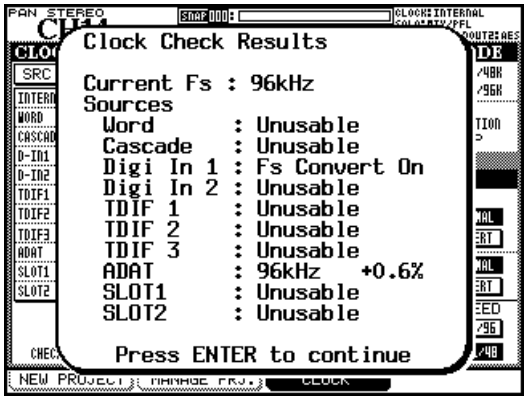


Figure 3.7: Checking the clock sources

Varispeed clocking Note that the DM-3200 is able to accept audio data and clock signals from "varispeed" devices, provided the playback speed and hence the sampling frequency is within 6% of the nominal frequency.

Of course, when the out-of-normal clock is to be re-transmitted to other devices, it depends on the implementation of the other devicse as to whether the clock can successfully be accepted by them.

Clock change action When the clock is changed, you have an option to reboot and keep (KEEP) the existing mixer configuration (MIXER CONFIGURATION), or to initialize the settings (INITIALIZE) the DM-3200.

When you make the change to the clock, an appropriate popup message appears, telling you what is about to happen (either the mixer will reboot, or the data will be initialized). Press **ENTER** to carry on with the operation or a cursor key to cancel it.

WARNING

Whichever option you select here, remember that changing the clock source and/or frequency may produce "thumps" and noise which may cause damage to your hearing and the monitoring system, etc. Turn down the levels of all such equipment before making the change to the clock settings.

Changing the clock If the desired clock source has a frequency selection option, select the frequency.

The stereo digital inputs (D-IN1 and D-IN2) can have their sampling frequency manually set here (but if the frequency converter is turned on, they cannot act as clock sources). To enable the manual setup for both digital inputs, which overwrites the embedded C bit (channel status bit) information, check the checkbox, and select the sampling frequency. Note also that if the optional AES/EBU slot card is fitted, the settings made here are applied to this card as well.

The following options relate to the different clock sources available:

	Normal	High-speed
Internal	48K/44.1K	96K/88.2K
Word (WORD SYNC) connection	48K/44.1K	96K/88.2K
Cascade	No options	
Digital in 1/2	Manual setup, 48K/44.1K	Manual setup, 96K/88.2K
TDIF 1/2/3	No options	
ADAT	48K/44.1K	96K/88.2K (note that this is dual-line input at high speed)
AES card	1/2, 3/4, 5/6, 7/8	1/2, 3/4, 5/6, 7/8
TDIF card	No options	
ADAT card	48K/44.1K	
AD/DA card	No options—this card is not capable of acting as a clock source	
FireWire card	TDM format (clock is transmitted on SLRCK)	

When you have selected the appropriate option for the clock source, move the cursor to the checkbox and press **ENTER**.

A checkmark (✔) appears in the box if a valid clock signal is present, a cross (✘) if it is not present, and a question mark (**?**) if the clock signal is out of range. An appropriate popup message is shown in the event of an error in the selected clock signal.

If the clock signal is a valid one, and one which can be used, an appropriate popup message (depending on the action selected when the clock is changed (“Clock change action” on page 44) is shown).

Press **ENTER** to change the clock, or a cursor key to cancel the action.

Clock phase The phase of the clock signal received at the **WORD SYNC IN** or transmitted or passed through the **WORD SYNC OUT/THRU** terminal (see also “WORD SYNC (IN and OUT/THRU)” on page 42) can be inverted using the on-screen phase controls.

OUT SPEED Note that in high-speed mode, the clock transmitted from the **WORD SYNC OUT** can be either the high-speed (88.2/96) clock or the corresponding normal speed (44.1/48) clock.

4 – Routing & assignment

This section deals with the routing of signals between the different sections of the mixing console, with the assignment of channels to busses, etc. and with metering and the monitoring of the signals in the control room and studio.

The DM-3200 is equipped with two types of mixer channel modules, with the first 32 fully equipped with EQ and full dynamics processing, and modules 33 through 48 being more similar to the basic return channels on a traditional recording mixer. See the table below for an explanation of the facilities provided.

Note also that there are two modes for the first 32 channels—*input* and *return* modes—similar to the channel modes found on many recording mixers, allowing replay and mixing of recorded tracks without physical repatching. As with many such recording mixers, the "return" has fewer features than an input source, and these are shown in the table below.

	Modules					
	Channels 1–32 (input)	Channels 1–32 (return)	Channels 33–48	Aux modules (1–8)	Buss modules (1–16)	Stereo buss module
Gate	Yes	—	—	—	—	—
Compressor/ expander	Yes	—	—	Yes	Yes	Yes
Phase switch	Yes	—	—	—	—	—
Digital trim	Yes	—	—	—	—	—
"Soft" inserts	Yes	—	—	Yes	Yes	Yes
4-band EQ	Yes	—	—	—	—	—
Channel delay	Yes	—	—	Yes	Yes	Yes
Pan / surround pan[a]	Yes	—	Yes	—	—	—
Aux sends	Yes	Yes[b]	Yes	—	Yes[b]	Yes[b]
Mute	Yes	Yes	Yes	Yes	Yes	—
Solo	Yes	Yes	Yes	—	—	—
Direct	Yes	—	—	—	—	—
Buss outputs	Yes	Yes	Yes	—	—	—
Stereo outputs	Yes	—	Yes	Yes	Yes	—

Figure 4.1: Module facilities on the DM-3200

a. Depending on current surround setting
b. Aux 1–2 only

The level of all modules is controllable via faders, and adjacent odd-even pairs of all modules can be linked (except for the stereo buss, of course).

The operation of all these modules is almost identical and so they are described together here, with appropriate notes when a feature only appears on certain channel modules.

- As well as the physical insert points described in "Channel inserts" on page 39, the DM-3200 also includes "soft" inserts, which allow the interconnection of internal components for more complex

- Assignment of modules to the 16 busses as well as to the stereo busses is carried out by dedicated keys (to the left of the display).
- Assignment of physical hardware inputs to modules, and of internal components to physical hardware outputs, together with the internal patching between mixer sections, as well as the setting up of the "soft" inserts, is done in the ASSIGN screens (see "Routing" on page 47).

Routing

Use the ROUTING screens to set up the routing of input sources to modules, etc. as well as to set outputs. There are three of these screens: one for INPUT, one for OUTPUT and one for the soft INSERTS.

To enter these screens, press the **ROUTING** key until the appropriate screen is shown on the display.

NOTE

Assignment of channels to busses is done by means of the buss keys to the left of the display, or by means of the ASSIGN *screens (use the* **ASSIGN** *key here).*

Input routing

The INPUT screen allows you to select input sources from a list composed of (mainly) the physical inputs of the DM-3200, and route them to input destinations (channels and dynamics triggers).

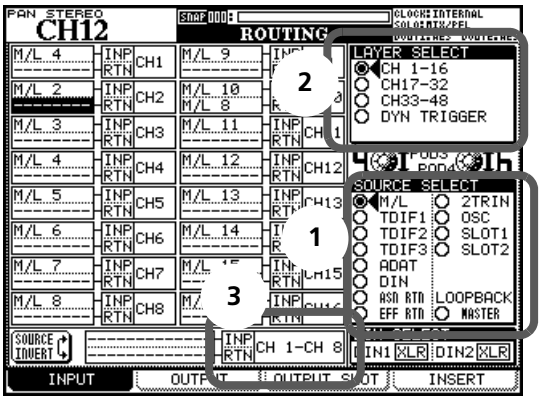


Figure 4.2: Routing inputs

1 Select the source group with the POD 4 encoder.

The input sources are as follows, as listed at the lower right of the screen (1 in Figure 4.2, *Routing inputs*):

M/L	Mic/line input channels (see "Mic/line connections" on page 39).
TDIF1/TDIF2/ TDIF3	The three built-in TDIF 8-channel input ports (see "TDIF I/O" on page 40).
ADAT	The eight optical "lightpipe" inputs (see"ADAT "lightpipe" OUT & IN" on page 40).
DIN	The two stereo digital inputs (see "Digital inputs and outputs" on page 40).
ASN RTN	The four analog assignable returns (see "Analog inputs" on page 33).
EFF RTN	The internal effect returns (see "Insert patching" on page 50).
2TRIN	The 2-track master recorder inputs (see "2 TR IN" on page 39).
OSC	Internal oscillator
SLOT1/SLOT2	The inputs provided by any cards fitted to the slots (see "Slot card configuration" on page 42 for details).
LOOPBACK options	Explained below ("Loopback options" on page 48).

2 Select the destination layer of these input sources by using the POD 3 encoder (2 in Figure 4.2, *Routing inputs*). Choose between:

CH 1-16	Channel modules 1 through 16
CH 17-32	Channel modules 17 through 32
CH 33-48	Channel modules 33 through 48
DYN TRIGGER	The eight dynamics processor triggers also described in "Trigger settings" on page 65

If either of the first two options is selected, each destination module is shown in the list with an INP (input) and RTN (return) available for routing selection. Channels 33 through 48 only present the input (though this has only return capabilities).

3 Use the cursor keys to select the source field (either the input or return in the case of channels 1 through 32), and use the dial to select the input source (from the available sources within the selected source block).

4 You must then press ENTER to confirm the routing selection.

TIP

Note that linked modules allow you to select independent sources.

Also note that while the same source may be routed to more than one destination layer (you might want to try recording a vocal line with different compression settings, for example), a destination layer can only accept one source (of course!).

Batch routing It may be a little troublesome at times to select eight consecutive inputs and then route them to eight separate consecutive destinations.

To set up eight input/destinations at one time, move the cursor down to the batch setup area at the bottom center of the screen (**3** in Figure 4.2, *Routing inputs*). The destination is on the right and the source is on the left.

1. **Move the cursor to the destination field and use the dial and ENTER key to select eight destinations (not in dynamic trigger layer selection).**
2. **Move the cursor to the input source selection on the left.**
3. **Use the dial to select a group of eight inputs from the input source selected using POD 3 (some input sources have only eight inputs anyway and in double-frequency mode some sources may only have four inputs). You can use POD 3 to select another input source.**
4. **Press ENTER. When you press ENTER, the eight input sources are assigned in order to the eight destinations.**

Flipping the channels It is possible to "flip" channel inputs between the input and return sources (so that the "input" source becomes the "return" and vice versa) on an individual basis within the MODULE screens (see "INPUT/RETURN selection" on page 70), but it is sometimes convenient to be able to do this for batches of eight channels at a time.

This is done from this INPUT screen using the BATCH SETUP at the bottom of the screen. Of course this can only be done for channels 1 through 32, as these are the only ones for which the input and return sources may be selected.

1. **Use the dial to select the destination field (the left field) and confirm with ENTER.**
2. **Move to the on-screen button** SOURCE INVERT **(inverts the sources) and press ENTER. A popup appears asking for confirmation. Press ENTER again to flip the selected eight channels (a cursor key cancels).**

Loopback options The loopback options provide even more flexibility in internal routing, but they should be approached with caution.

They allow the sixteen busses, aux 1 through 8 or stereo buss, or the direct channel outputs of the first 32 channels (similar to direct outputs on an analog console) to be used as input sources to channels.

The display shows Bx/Dy (x can be from 1 through 16 and is repeated twice, while y is from 1 through 32, e.g. B1/D17) or BUSS 1 through BUSS 16 or AUX 1 through AUX 8 or STEREO L or STEREO R when a loopback routing is selected.

When a channel has a direct output selected, the direct output from that channel overrides the correspondingly-numbered buss.

The direct option allows the selection of only the direct module outputs (1–32) as sources. Note that the selection of **DIRECT** as a channel destination, using the selection keys, removes the channel from the busses.

WARNING

As the name of these loopback options suggests, they allow flexible internal repatching, which could result in a loop whereby the output of a buss also acts as an input to the same buss, resulting in a feedback loop. When monitoring, this can result in damage to hearing and monitoring equipment.

Before using these options, we suggest that you work out on paper what exactly you are trying to achieve, and it may help if you draw a diagram to help you work out the ultimate sources and destinations of the routing in your system.

Digital input selection At the bottom right of this screen, the physical connector (XLR or RCA) for each of the stereo digital inputs can be selected.

Output routing

The output routing screen allows you to tie the logical outputs from the different parts of the DM-3200 to the physical output ports.

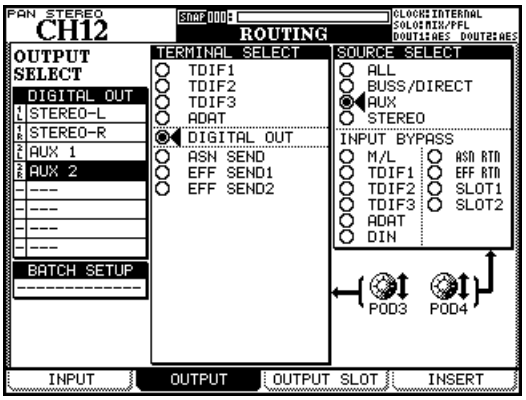


Figure 4.3: Routing outputs

There are two such screens, one dedicated to the built-in outputs of the DM-3200, and the other dedicated to the outputs provided by any optional cards fitted in the slots.

Use POD 3 to select the physical terminals to which the output sources will be routed.

Select from:

- TDIF1, TDIF2, TDIF3 The three TDIF format connectors
- ADAT The optical ADAT output
- DIGITAL OUT The stereo digital outputs
- ASN SEND The four analog assignable sends
- EFF SEND1, EFF SEND2 These are not physical outputs, but virtual patches to the inputs of the internal effects.

Use the POD 4 control to select the output source. Select from:

- ALL (all of the output sources mentioned below)
- BUSS/DIRECT The 16 busses, and any direct channel outputs
- AUX The eight aux sends
- STEREO The stereo buss

There is a second selection called INPUT BYBASS, which allows you to select the same input sources as for input routing (see “Input routing” on page 47). These inputs are routed directly to the selected outputs, just like a patchbay.

TIP

These “bypass sends” can be useful for physical format conversion, etc. For example, if you have material on a medium that can only be output in ADAT optical, for example, and you need it transmitted to your DAW which has only TDIF format inputs, with no extra processing, this feature allows you to do just that.

Slot card outputs The second page of this screen allows the selection of the output sources (including the input bypass sources) and their assignment to the outputs of the optional slot cards fitted to the DM-3200.

The exact configuration of the outputs of the slot cards and their use depend on the actual slot card fitted, as well as the surround mode currently selected. For example, the FireWire expansion card (software versions after 1.0) provides up to 24 destination channels to a DAW.

Consult the documentation relating to the appropriate card(s) fitted to your system for details.

Insert patching

NOTE

It is important to note the difference between the hardware inserts and the software inserts described here on the DM-3200. The hardware inserts are completely in the analog domain and apply only to the mic/line inputs.

The software inserts are available to many more internal modules. Although these insert loops may exit from the DM-3200 in either the analog or digital domain, they may also remain completely within the unit, using internal "patch" connections.

These "soft" inserts allow 16 different input and output pairs to be defined as inserts at definable points in the DM-3200 signal path.

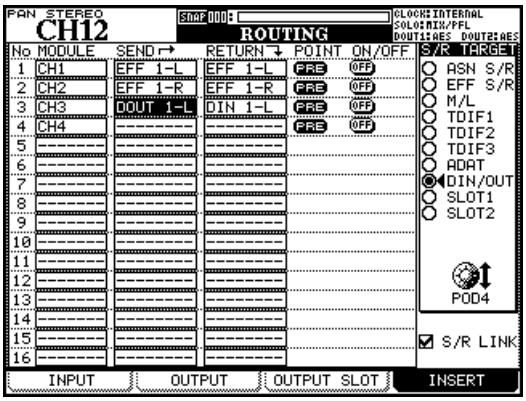


Figure 4.4: Routing inserts

1 **Use the POD 4 encoder to select the send/return target group, and select a return point (the left column of the screen).**

- ASN S/R **The four pairs of external analog send and return jacks**
- EFF S/R **The internal effects unit sends and returns**
- M/L **The microphone/line inputs (note that these can only be used as returns, not as sends)**
- TDIF1, TDIF2, TDIF3 **The three built-in TDIF I/O ports**
- ADAT **The "lightpipe" ADAT ports**
- DIN/OUT **The two stereo digital inputs and outputs**
- SLOT1, SLOT2 **The optional cards fitted in the slots (note that a card such as the surround monitor card only has outputs and can therefore only act as a send group)**

2 **Select a send point in the** SEND **column from the group selected with POD 4 (this does not have to be the same as the return group—you could even have an analog send to an external effect with a digital return, for example).**

3 **Select the return point in the** RETURN **column from the group selected in the** S/R TARGET **area.**

NOTE

Note that you cannot use a return module which has already been assigned as an input point.

When you have selected the send, return and module, you can then use the on-screen switches to select whether the insert point will be pre-fader (PRE) or post-fader (POST)—channel modules only, as the other modules do not allow the selection of the insert point, and this option is therefore not available when non-channel modules are selected.

The insert point can also be turned ON and OFF here (allowing you to make easy A/B comparisons).

Send/return linking In some cases, the sends and returns form a clearly-defined pair (for example, the assignable sends and returns). To make insert setup operations easier, check the S/R LINK checkbox at the bottom left of the screen.

When this is checked, selecting a send point in the will automatically select the corresponding return point (or vice versa).

Channel-to-buss assignment

You may have noticed that the channel-to-buss assignment functions are not available from the routing screens.

Because this is such a commonly-performed operation, it is most easily performed from the front panel, using dedicated controls, though it is also possible to use the display to view and set these assignments for many modules simultaneously.

Assignment using the front panel

This method uses the dedicated assignment keys to the left of the display:

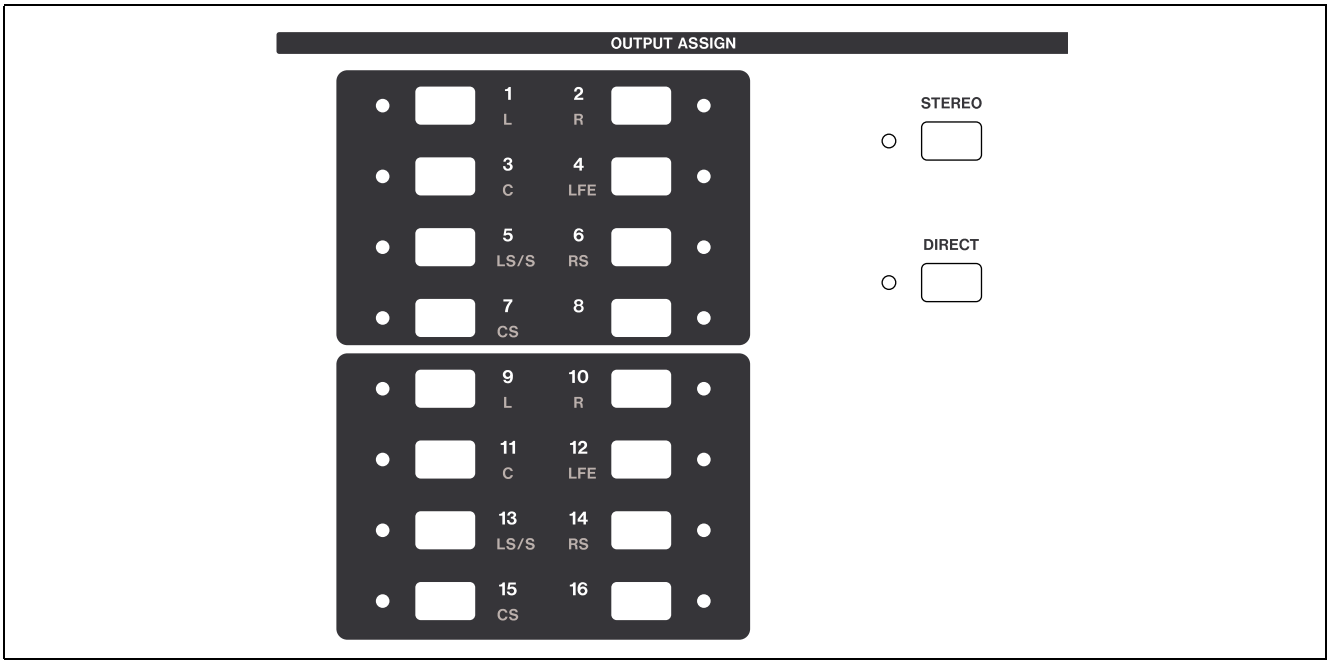


Figure 4.5: Assignment keys

When a module (not a bus module) is selected, any buss assignment made is shown by the appropriate indicator(s) lighting.

Use these assignment keys to assign the module to the busses (which in turn may be routed to multitrack inputs, etc., using the routing screens described earlier in “Output routing” on page 49).

It is also possible to assign a module to the stereo buss using the dedicated **STEREO** key.

In addition, a **DIRECT** key provides the capability of producing a direct channel output which can then be used for routing in the ROUTING screens. When this is selected, any buss assignments are removed.

Using the assignment screens These screens allow you to assign channels to the busses, and the busses and the aux sends to the appropriate destinations, in an easy graphical solution.

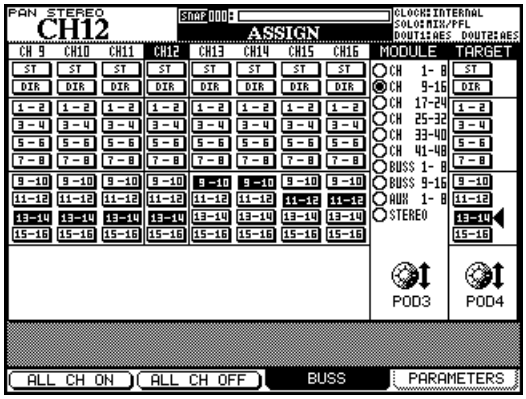


Figure 4.6: Buss assignment screen (linked busses)

Use the POD 3 encoder to select banks of eight channel modules at a time, and the display changes as these are selected. You can also select busses in groups of eight, as well as the aux sends (see below).

Use the wheel or left and right cursor keys to navigate round the screen (you can also use the **SEL** keys or fader selection), and the **ENTER** key to assign and de-assign busses or the stereo (ST) or direct outputs (DIR). As you make and break these assignments, the indicators by the control surface keys mirror the screen settings (and the other way round).

Pan switch There is an invisible "pan switch" which links and unlinks pairs of busses (this also depends on the linked pan mode).

When this switch is set, and busses are linked, they are also joined for panning and they are assigned in pairs.

However, when this switch is not set, the buss pairs can be split for individual assignment.

- **Pressing and holding the SHIFT key while pressing one of the ASSIGN keys operates a split or join function on a buss pair, allowing busses to be individually assigned when split.**

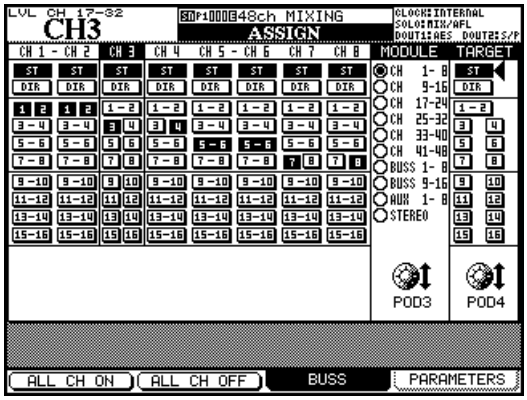


Figure 4.7: Buss assignments with the pan switch off

In Figure 4.7, *Buss assignments with the pan switch off*, channel module 3 is selected, and assigned only to buss 3, which has been separated from buss 4.

The linked pan mode ("BUSS Link/BUSS PAN are Linked" on page 35) also determines whether splitting a buss pair either splits the busses for channels individually (as in the example screen above), or all together for all channels. When this parameter is set off, buss pairs may be split individually, and when it is on, buss pairs are split together.

Note that buss assignment is also connected to module linking. In this illustration, channels 1 and 2 are linked, but are assigned to busses 1 and 2. In this case, the assignments are linked, so assigning channel 1 to buss 1 also links channel 2 to buss 1.

Surround assignments In surround mode with the pan switch on, the meaning is different—channel modules are assigned to one or both of the surround panners for fine adjustment.

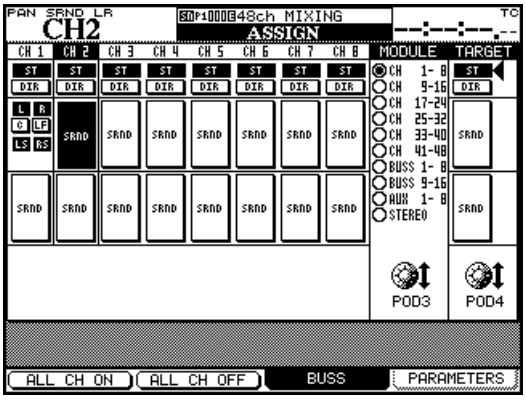


Figure 4.8: Surround channel assignment screen

In addition to using the cursor and **ENTER** keys for assigning the channels modules to the surround busses, the **ASSIGN** keys can also be used.

With the pan switch on, use any of the **ASSIGN** keys 1 through 8 to turn surround 1 on and off (all indicators light together) and **ASSIGN** keys 9 through 16 to turn surround 2 on and off.

See “Surround operations” on page 75 for further details of this and other surround operations, including the individual assignment of channels to surround matrix output channels with the pan switch off.

Non-channel assignments Assignments from the busses may be made to the stereo buss as well as to the aux 1–2 send busses (which can therefore be used as studio monitors).

Assignments from the aux sends can be made to the stereo buss only.

Assignments from the stereo buss are to the aux 1–2 send busses (again for monitoring).

Bulk assignment The POD 1 and POD 2 switches correspond to “assign all” and “de-assign all” on-screen buttons.

For channel assignments, use the POD 4 encoder to select a target buss (or the stereo buss or direct output) for channels and then press ALL CH ON (POD 1) or ALL CH OFF (POD 2) to assign or de-assign all channels to or from the selected target.

Buss assignments may be made to the stereo buss and/or the aux 1–2 buss pair. The labels of the on-screen buttons change here to ALL BUSS ON (POD 1) and ALL BUSS OFF (POD 2).

For aux sends and the stereo buss, the button labels are ALL ON (POD 1) and ALL OFF (POD 2).

Buss panning The balance between odd- and even-numbered busses is set in the MODULE AUX/BUSS screens (see “Aux and buss setup” on page 68). See also “BUSS PAN Follows ST PAN” on page 34 for details of how buss and stereo panning are linked.

Monitoring

The DM-3200 provides comprehensive monitoring and metering facilities allowing both control room and studio cue mixes to be produced.

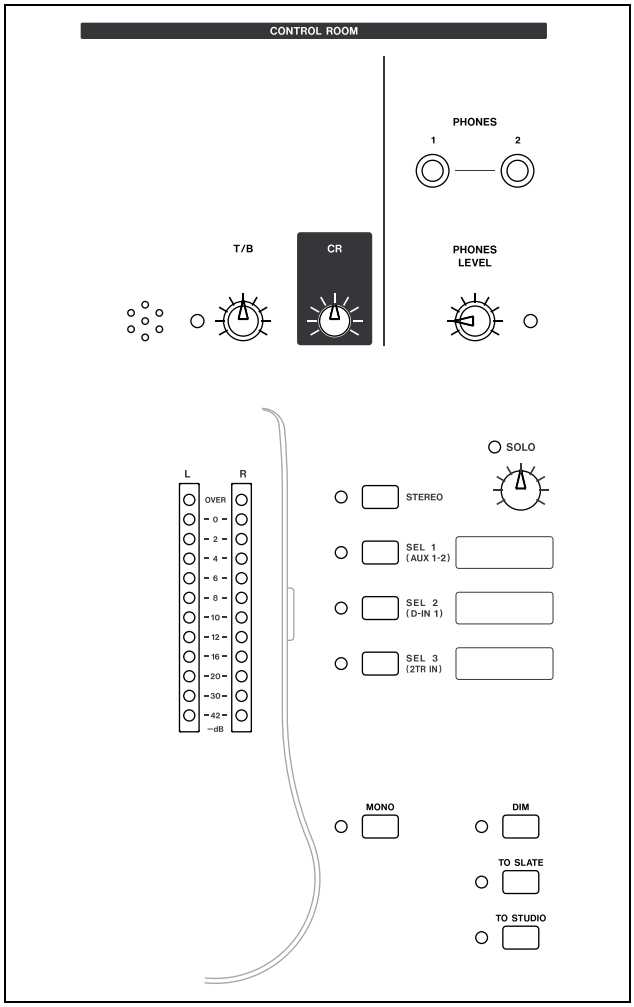


Figure 4.9: Monitoring and metering controls

This section describes the monitoring procedures and setup when working in stereo. When working with surround mixes, there are obviously some important differences, and these are described in “Surround operations” on page 75.

Selecting the CR source

The four dedicated keys and indicators to the right of the meters allow instant switching of the control room monitor sources and the two **PHONES** outputs, which mirror the output from the control room monitor outputs.

The first key is hard-wired to the stereo buss (**STEREO**) and cannot be changed.

The next three keys, in order, default to the aux 1–2 sends (typically used for studio cue), digital input 1 (e.g. a stereo recorder) and the analog 2-track inputs (again, this could be a stereo master recorder).

However, these assignments can be changed using the MONITOR screen:

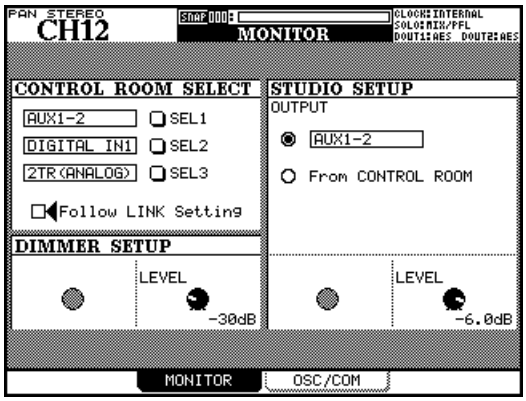


Figure 4.10: Monitor parameters screen

Move the cursor to the selection dial of any of the three selectors, use the dial to select the source, and press **ENTER**.

The sources that may be selected for these monitor selectors are:

- The eight aux sends
- The four linked pairs of aux sends
- The sixteen busses
- The eight link buss pairs
- The two digital stereo inputs
- The analog 2-track input
- Oscillator

TIP

The three assignable monitoring buttons are provided with "scribble strips" allowing you to mark the current functions with an appropriate marker.

The Follow LINK setting allows a stereo setting to be made from a mono source, by following the links between adjacent aux sends or busses.

When this checkbox is off, and an unlinked odd-numbered aux send or buss is selected as the monitor source, that source is output in mono from the monitor outputs.

When this checkbox is on, and a linked odd-numbered aux send or buss is selected as the monitor source, that source is output from the left monitor channel, and the linked even-numbered aux send or buss is output from the right monitor channel.

When a linked pair of sends or busses is selected as the monitor source, this checkbox has no effect.

The volume of the analog output to the control room monitors is controlled using the dedicated **CR** volume control.

The **DIM** "smart key" (see "Smart keys" on page 16) lowers the level from the control room outputs when active. The amount by which the level is dimmed is set from this screen using the POD 2 encoder .

NOTE

Monitoring in surround mode is a different process, best achieved through use of the optional IF-FW/DM surround monitor card.

Studio cue source

The studio source may be set up to mirror the control room source by selecting the From CONTROL ROOM option, or it may be set independently using the upper option.

Turn the dial and press **ENTER** to make the selection. The options available here are:

- The stereo buss
- The four linked pairs of aux sends
- The eight link buss pairs
- The two digital stereo inputs
- The analog 2-track input
- The internal oscillator
- The control room monitor

TIP

Since there are several options in the routing, etc. that only affect the aux 1–2 sends, we suggest that you use these as a separate studio cue feed.

The volume of the studio cue is adjusted from this screen using the POD 4 encoder.

Talkback, etc.

The internal talkback microphone is located above the meters. The sensitivity of the microphone is adjusted using the **T/B** control next to the microphone.

The **TO SLATE** and **TO STUDIO** keys are both "smart keys". When active, they route the talkback microphone to the busses and/or aux sends as selected below, and to the studio respectively, and dim the control room outputs.

The **MONO** key (also a "smart key") provides mono control room monitoring, combining the left and right signals into one mono signal.

Talkback source However, note that the internal talkback microphone does not have to be used as the talkback source. Any one of the mic/line sources can be selected as a communication source (for example, a boundary field microphone situated in a large control room can allow comments from a production group to be routed to the artistes in the studio).

Select the talkback source (T/B SOURCE) in the MONITOR OSC/COM screen:

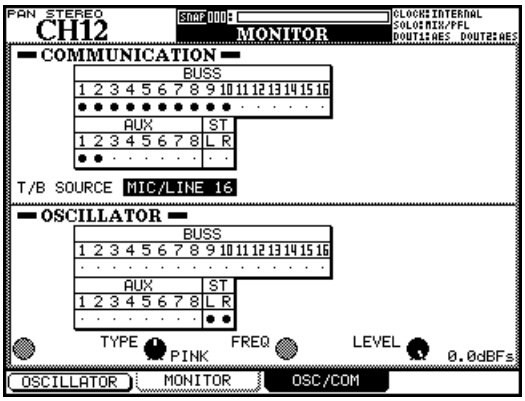


Figure 4.11: Monitor oscillator and communication screen

Use the cursor to navigate to this field, the dial to make the selection between INT T/B MIC (internal microphone) and MIC/LINE 1 through 16. Press **ENTER** to confirm the setting.

Slate definition The COMMUNICATION fields allow you to choose the busses and aux sends which will act as the "slate" when the **TO SLATE** key is enabled for sending talkback. Any combination of busses, aux sends and the stereo buss can be selected (cursor keys and **ENTER** key) as slate destination. Linking of busses and aux sends has no effect on this screen.

Oscillator and noise generator

In order to help with signal tracing, the setting of SPLs, etc., the DM-3200 provides an internal tone/noise generator.

The POD 1 switch turns the generator on and off.

Use POD 2 to set the type of generator: either a sine-wave oscillator (SINE), a white noise generator (WHITE), or a pink noise generator (PINK).

POD 3 sets the frequency if the sine wave oscillator has been selected. There are four choices: 100Hz, 440Hz (standard tuning A), 1kHz and 10kHz.

POD 4 sets the level from –36dBFS to 0dBFS in 0.5dB steps. Remember that –16dBFS is the nominal level, so you can use this setting when setting up SPLs, etc. for your monitoring system.

Oscillator destination Use the OSCILLATOR fields (cursor keys and **ENTER** key) to route the generator fields to any combination of busses, aux sends or the stereo buss. This is an extremely useful "patch-free" method of signal tracing.

Meters

The main monitor meters provide a “pre-dim” and “pre-level control” reading of the source selected to feed the control room outputs.

The meters are set up so that the **OVER** indicator lights at over full-scale output. A reading corresponding to –16 on the meters is equivalent to a nominal analog level (+4dBU or –10dBV).

Meter ballistics The meter ballistics, etc. for all meters, including software meters, and these are set up in the METER/FADER METER screen (see “Metering screen (1st 24 channel module meters)” on page 57).

From this screen, use the POD 3 encoder to set the meter release time between Slow, Normal and Fast.

Use the POD 4 encoder to set the meter hold time between Off (no hold), 1, 2, 4 and 8 seconds, and ∞ (infinite hold until this parameter is reset).

Each module also has its own set of meters which are located in the common global area of the module screens (“Global module settings” on page 60) which can be set there as being pre- or post-fader.

There is also a series of metering screens, as mentioned above, allowing different sets of modules to be metered.

On-screen meter selection Use the left-hand column of radio buttons to select the following modules for metering:

CH 1-24	The first 24 channel modules
CH 25-48	The second 24 channel modules (the last 16 “full-featured” modules and the 16 “return” modules)
Buss 1-16	The 16 busses
AUX 1-8	The 8 aux sends

In every case, the stereo buss meters are visible at the lower right of the screen:

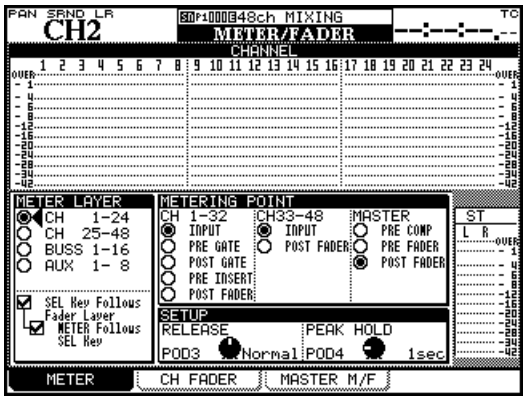


Figure 4.12: Metering screen (1st 24 channel module meters)

The options at the extreme lower left echo the same settings made in the preferences (as explained in “SEL Key Follows Fader Layer Status” on page 34).

Metering points The center METERING POINT array of radio buttons allows the selection of where the metering for the different groups of modules takes place.

For the “full-feature” modules from 1 through 32 (CH 1-32), the points are at the input stage (INPUT), before the gate (PRE GATE), after the gate (POST GATE) or after the EQ stage (PRE INSERT), and after the fader (POST FADER).

For the channel modules from 33 through 48 (CH 33-48), there are only 2 meter points: at the input stage (INPUT) and after the fader (POST FADER).

The master channels (MASTER) can be metered pre-compressor/expander (PRE COMP), pre-fader (PRE FADER) or post-fader (POST FADER).

NOTE

If the optional meter bridge is fitted, the settings made here apply to the meter displays on the meter bridge, as well as to the on-screen meter displays.

TIP

The TASCAM Mixer Companion software provides a software “meter bridge”.

Soloing

Dedicated **SOLO** keys for each module allow either mixed or in-place soloing. The type of solo (PFL, AFL, in-place) is determined by the settings made on the OPTION SOLO screen (“SOLO TYPE” on page 35).

Channels can be protected from muting during in-place soloing of other channels using the defeat function described in “INPLACE SOLO DEFEAT” on page 35.

When a channel is soloed, its **SOLO** key lights, and the **SOLO** indicator in the **MONITOR** section flashes or is lit when one or more channels are soloed, to indicate that solo mode is active.

PFL soloing flashes the indicator slowly, AFL flashes it fast, and the inplace solo mode lights it steadily.

Pressing the channel’s **SOLO** key once more cancels the solo.

TIP

Pressing and holding **SHIFT** *and pressing any lit* **SOLO** *key cancels all solos on the current fader layer.*

Pressing and holding **CTRL** *and pressing any lit* **SOLO** *key cancels all solos on all fader layers.*

The channel modules are the "heart" of the DM-3200, corresponding to the channel strips on an analog console. Because they are used so often, and settings have to be made frequently, there are a number of ways of viewing and making the settings for these modules, as explained in this section.

General principles

There are several ways of setting many of the channel parameters.

- The first is by means of the MODULE screens accessed with the **MODULE** keys (see "Jumping to commonly-used screens" on page 17).

There are four module screens:

DYNAMICS allows the setting of the modules' compressor/expanders (channels 1 through 32, stereo, aux and buss modules) and gates (channels 1 through 32).

EQ allows the setting of the 4-band parametric EQ (channels 1 through 32).

AUX/BUSS allows the setting of the aux sends and the buss assignments.

SETUP provides a way of viewing and setting overall channel parameters.

Various parameters and options are globally available from all module screens (see "Global module settings" on page 60).

- The second way of viewing and changing the parameters is by means of the dedicated screens accessed through the screen mode selection keys (see "Basic operational concepts" on page 16) and the POD controls. These screens allow the viewing and setting of the same parameter for many different modules from the same screen.
- In addition, the encoders may be used to control one parameter (not all parameters may be controlled in this way, but commonly-used ones) of all the modules in the current fader layer or to control many parameters of the currently selected module. See "Encoders" on page 20 for details.

The encoder control methods can also be combined automatically with the screen displays. See the options "Encoder Mode Follows Current Screen" on page 34 and "Current Screen Follows Encoder Mode" on page 34 which enable automatic links between the screen and the encoder modes.

NOTE

Many of the screens and parameters described here apply when the DM-3200 is in stereo mode. For differences and additional features implemented when surround mode is selected, see "Surround operations" on page 75.

ASSIGN PARAMETERS screen Also note the PARAMETERS screen (available from the **ASSIGN** key), which allows a number of different settings to be applied to many channels simultaneously.

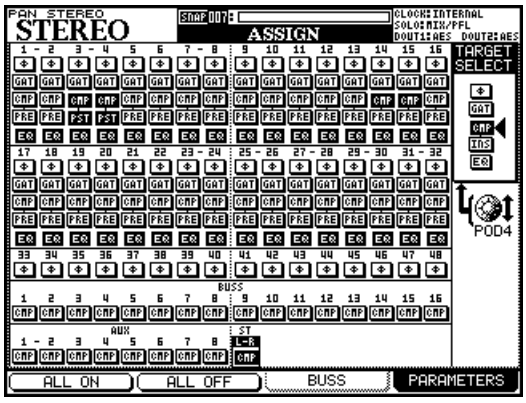


Figure 5.1: Assign parameters screen

The screen shows the channel modules (labeled 1 through 48), the 16 busses (1 through 16), the eight aux sends 1 through 8) and the stereo buss.

1. **Use the POD 4 encoder to select phase, gate switching, compression, compressor/expander insert point position (pre or post) or EQ on/off.**
2. **Use the left/right cursor keys, wheel or SEL keys to navigate around the screen and the ENTER key to turn the following on or off (see later in this section for details of these channel features).**

   Note that the only feature available for the busses, the aux sends and the stereo buss is the compressor/expander dynamics processor.

- ∅—reverse ("pressed") or normal phase (channel modules only)
- GAT—gate dynamics processor (1–32)
- CMP—compressor/expander dynamics processor (1–32, aux, buss and stereo)
- PRE/PST—pre/post EQ point for compressor (1–32)
- EQ—turns the EQ on and off for that channel module (1–32)

It is also possible to use the POD 4 encoder to select phase, gate switching, compression, software insert position, compressor position, or EQ on/off as a global setting, and use the POD 1 key (ALL ON) or POD 2 (ALL OFF) to switch these on or off respectively.

Global module settings

These settings are common to the four different module screens, and do not change when the module screen is changed.

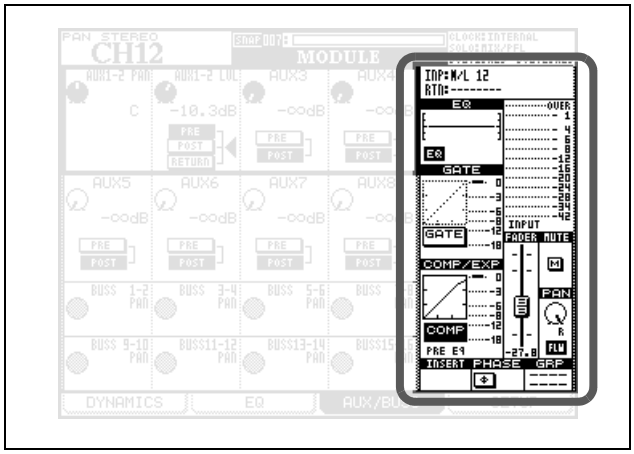


Figure 5.2: Common "global" module settings

Navigate to the appropriate on-screen control, and use the **ENTER** key to turn switches on and off, and POD 4's encoder to adjust the fader level and pan/balance control when these are highlighted.

NOTE

As explained in Figure 4.1, Module facilities on the DM-3200, not every module is equipped with all these features. Only those features available on a selected module are actually shown on the display.

Input and return display Cannot be changed here, but shows the current input and return assignments.

EQ display and button The EQ display provides a graphical display of the EQ settings. It cannot be changed. However, the EQ button allows the EQ of the channel to be switched in and out, allowing easy A-B comparisons.

GATE display and button The GATE display provides a graphical display of the gate settings, and cannot be changed. The GATE button allows the gate to be switched on and off for A-B comparisons.

COMP/EXP display and COMP button The COMP/EXP display provides a graphical display of the current compressor/expander settings, and cannot be changed. The COMP button allows the compressor/expander to be turned on and off for comparison.

Compressor/expander point button Use this button to change the point at which the compressor/limiter is inserted in the channel between a pre-EQ (PRE EQ) or post-EQ (POST EQ) position (channels 1 through 32 only—busses, aux and the stereo buss are fixed at pre fader).

Meters and pick-off point button Show the current module levels. The button allows the pick-off point to be set as follows:

Channels 1–32	Channels 33–48	Buss, aux, stereo
INPUT	INPUT	—
PRE GATE	—	—
POST GATE	—	PRE COMP
PRE INSERT	—	PRE FADER
POST FADER	POST FADER	POST FADER

Fader Allows precise setting and echoes the physical fader setting. When this is highlighted, it can be controlled using the POD 4 encoder.

Also see "Fader control" on page 61 for details of how to view and make fader settings globally.

TIP

You can use the one-step mode for ultra-fine control here. See "Encoder behavior" on page 23.

MUTE button Allows the module to be muted and un-muted (echoes the status of the hardware **MUTE** key).

PAN (BALANCE) control Use POD 4 to change the value of this control (pan changes to balance when channels are linked).

PAN follow button Use this control like the buss option described in "BUSS PAN Follows ST PAN" on page 34.

INSERT button (with linked or stereo modules, two such buttons are available), allowing you to turn the soft insert(s) on and off (see "Insert patching" on page 50) for details.

Phase button (with linked or stereo modules, two such buttons are available), allowing you to reverse the phase of the input on the selected channel(s).

AUX1-2 button (on buss and stereo modules only), allowing the buss or stereo mix to be routed through to the aux 1-2 pair (typically for studio foldback purposes).

STEREO button (on buss and aux modules only) allowing you to route the buss or aux send to the stereo buss.

Group assignment displays Display, but do not allow change on this screen, any fader or mute group assignments.

NOTE

The buss assignments of channel modules are not shown on the display, as the appropriate buss assign indicators light to show the buss assignments when a channel module is selected.

Fader control

From the METER/FADER screens, select either the CH FADER or MASTER M/F tabs:

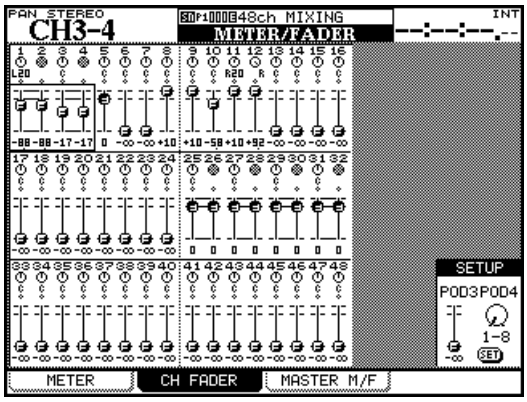


Figure 5.3: Channel fader screen

In the channel fader screen shown here, the current fader and pan positions of all 48 channel modules are shown.

Moving the cursor around this screen highlights pan controls or faders in blocks of four (you can also use the channel **SEL** keys to jump around the screen). Use the four POD encoders to adjust the on-screen controls.

Mute status and links are also visible on this screen.

Note that in surround mode, the surround L-R panning is displayed and set here using POD 1 when the on-screen pan controls are highlighted.

To set a master level in blocks of eight channels, move the cursor to the bottom right of the screen (SETUP) and then use POD 3 encoder to adjust the fader level. POD 4 selects the group to be set (in groups of eight channels), or all channels (ALL).

Press the on-screen **SET** button when done. A popup message asks you to confirm the setting (**ENTER**) or cancel the operation (cursor key).

Master screen The MASTER METER/FADER screen works in a similar way. The top of the screen shows the buss, aux send and stereo meters (metering points selected by moving the cursor to METERING POINT, and using the wheel and **ENTER** to set the point).

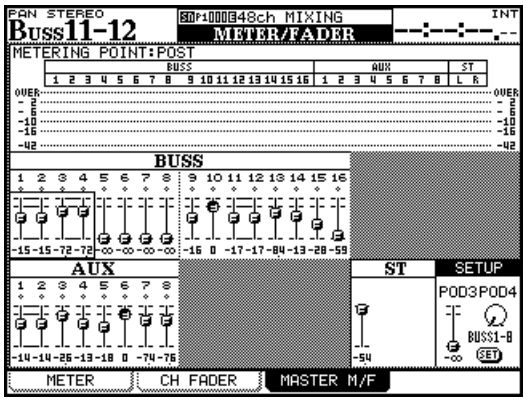


Figure 5.4: Master fader screen

Buss and aux levels are selectable in groups of 4, and the levels can be adjusted as with the channels using the POD encoders.

The SETUP section of the screen allows setting of the first or second eight buss levels, the aux levels, or all aux and all buss levels, in the same way as for the channel modules using POD 3 to set the level, and POD 4 to select the target, with the **ENTER** key used to confirm the setting.

Dynamics processors

This section covers the use of the DM-3200's built-in compressor/expanders and gates.

Compressor/expander dynamics processors are available in all modules except channel modules 33 through 48.

Gates are available in channels 1 thorough 32 (input only).

The module screen accessed by the **DYNAMICS** key shows the settings for the currently selected input channel (as shown by the **SEL** indicator).

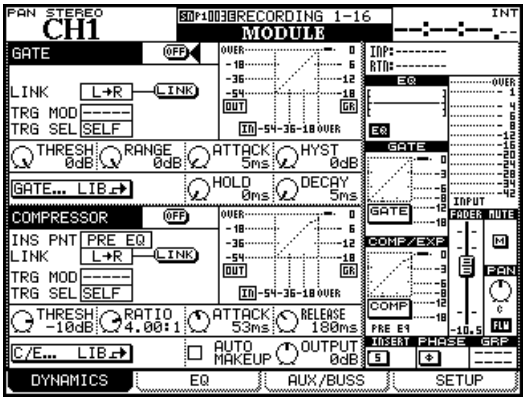


Figure 5.5: Unlinked DYNAMICS screen (channels 1 through 32)

If the selected channel is linked as part of a stereo pair, the settings affect both channels.

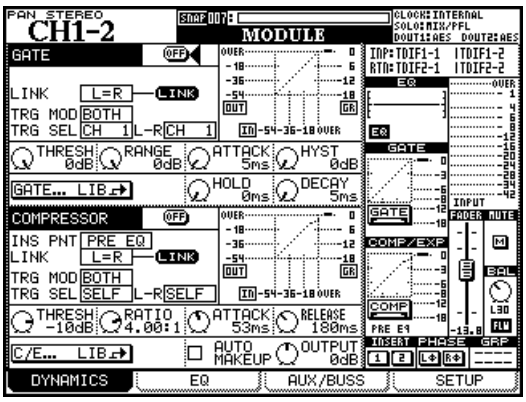


Figure 5.6: Linked DYNAMICS screen (channels 1 through 32)

LINK This and the two trigger settings following, apply both to compressor/expanders and to gates (where available). The link features means that both processors are linked by a common trigger signal. The two processors must be in adjacent channels of an odd-even pair (e.g. channels 3 and 4 can link their processors, channels 4 and 5 cannot).

The linking of the gates or expanders cannot be turned off when two channels have been linked. The above screen display shows L=R when the channels are linked.

When two channels are not linked, but the processors are linked, the processor source can be selected.

Trigger mode (TRG MOD) is only valid when two gates or expanders are linked. This option (selected using the dial and **ENTER** key) allows the triggering for both processors to be initiated by the left channel, the right channel, or BOTH (both channels act as triggers—in other words, the first channel to be triggered will automatically activate the second channel's processor).

Trigger selection Allows the selection of a channel (1–32), the selected module (shown as SELF) or a globally-defined trigger source (see "Input routing" on page 47), shown as TRGx as the trigger for the compressor (this can include a mic/line source routed to a trigger).

TIP

By feeding an input signal through a channel with EQ and selecting this as a trigger source, you can implement sidechain compression, without the use of a single patch cord!

Turning the processors on and off There is a key to the right of the assign bank marked **EQ/DYN**. This key has three functions, depending on whether it is pressed alone or with other keys:

Alone	Turns EQ on and off for the selected module (see "EQ" on page 66)
With the **SHIFT** key	Turns the gate on and off for the selected module
With the **CTRL** key	Turns the compressor/expander on and off for the selected module

The three indicators beside the key show the current status of the selected channel.

Gates (input channels 1–32)

GATE This is an on-screen button, allowing you to turn the channel gate (1 through 32, inputs only) on and off. Duplicated in the global section at the right of the screen.

Threshold (THRESH**)** , controlled by the POD 1 knob, allows the setting of the threshold at which the gate will open. Variable from -80dB to 0dB in 1dB steps.

Range (RANGE**)** , controlled by the POD 2 knob, sets the gate range, from 60dB to 0dB in 1dB steps.

Gate attack time (ATTACK), controlled by the POD 3 knob. Variable from 0ms to 125ms in 1ms steps.

Hysteresis (HYST**)** , controlled by the POD 4 knob, from 0dB to 24dB in 1dB steps.

NOTE

Hysteresis is a second threshold. The Threshold *value is used when opening the gate, and that of* Hysteresis*, typically set a few dB lower than* Threshold*, when closing the gate. This means that once a signal has dropped below the* Hysteresis *level, it must rise again to the* Threshold *level for the gate to re-open, thus reducing or eliminating gate "chatter"/*

Gate hold time (HOLD**)** , controlled by the POD 3 knob on the second row. Variable from 0ms to 990ms in 100 steps.

Gate decay time (DECAY) , controlled by the POD 4 knob on the second row. Variable from 50ms to 5.0s.

Decay time	Step size
5ms to 200ms	5ms
200ms to 300ms	10ms
300ms to 500ms	20ms
500ms to 1.00s	50ms
1.00s to 3.00s	0.1s
3.00s to 5.00s	0.2s

Compressor/expanders

COMP/EXPAND This is an on-screen button, allowing you to turn the channel compressor/expander on and off. Duplicated in the global section at the right of the screen.

Insert point (INS PNT**)** allows the compressor/expander to be inserted either pre-EQ or post-EQ (channels 1 through 32—buss, aux and stereo are pre-fader only). Move the cursor to this field and use the **ENTER** key to change this setting.

The link and trigger settings work in the same way as for the gate (see above).

Threshold (THRESH), controlled by the POD 1 knob, and variable from -48dB to 0dB in 1dB steps.

Compression/expansion ratio (RATIO), controlled by the POD 2 knob, and variable from 1:1 to ∞:1 (infinite compression).

The steps are as follows: 1.00:1, 1.05:1, 1.11:1, 1.18:1, 1.25:1, 1.33:1, 1.43:1, 1.54:1, 1.67:1, 1.82:1, 2.00:1, 2.22:1, 2.50:1, 2.86:1, 3.33:1, 4.00:1, 5.00:1, 6.67:1, 10.0:1, 20.0:1, ∞:1.

When the processor is used as an expander, the values are: 1.00, 2.00, 4.00, 8.00, 16.0, 32.0, 64.0.

Attack time (ATTACK), controlled by the POD 3 knob, and variable from 0ms to 125ms in 1ms steps.

Release time (RELEASE), controlled by the POD 4 knob, and variable from 5ms to 5.0s in 100 steps.

Release time	Step size
5ms to 200ms	5ms
200ms to 300ms	10ms
300ms to 500ms	20ms
500ms to 1.00s	50ms
1.00s to 3.00s	0.1s
3.00s to 5.00s	0.2s

Auto make-up (AUTOmk-up), controlled by the **ENTER** key. This is used if the compression settings have resulted in gain reduction. Not shown if the processor is being used as an expander.

Output gain (OUTGAIN), controlled by the POD 4 knob on the last row (grayed out if the auto make-up above is on). Variable from -20dB to +20dB in 1 dB steps. Not shown if the processor is being used as an expander.

Library jump buttons There are two such on-screen library jump buttons on channels 1 through 32 (gate and compressor/expander). Other modules only have the compressor/expander jump keys.

These buttons are labeled GATE... LIB→ and C/E... LIB→ respectively.

When pressed, the appropriate library screen is brought up, where the current settings can be stored for future use, or preset or previously-stored settings can be recalled for use in the project.

Preset dynamics library entries

The following preset entries are provided either to be used "as-is", or to be used as templates or starting points for experimentation.

These library entries are read-only (marked with an inverse R on the display), and may not be overwritten. However, it is possible to load the entries, edit the parameters, and then store them to a different library entry.

As always, there are no hard and fast rules as to what "works". Feel free to use the settings in a variety of contexts and change them as seems appropriate to you.

Compressor/expander library entries Use these settings for the compressor/expander either "as is" or edit them to your needs and store them as part of the project.

Program Number	Name	Comment
000	Sample Snare	For use with snare drums
001	Slap Bass	For use with slap-type bass inputs
002	Electric Bass	For use with electric bass guitar
003	Wood Bass	For use with upright bass (double-bass or contra-bass)
004	Synth. Bass 1	For use with synthesized bass lines
005	Synth. Bass 2	For use with synthesized bass lines
006	Acoustic Guitar	To be used with acoustic guitars (nylon or steel-strung)
007	Electric Guitar 1	For use with electric guitars
008	Electric Guitar 2	For use with electric guitars
009	Electric Guitar 3	For use with electric guitars
010	Brass	Effective with brass (horn) sections, etc.
011	Vocal 1	Use with vocal lines
012	Vocal 2	Use with vocal lines
013	Total Comp 1	Overall compressor setting
014	Total Comp 2	Overall compressor setting
015	Total Comp 3	Overall compressor setting
016	Post Pro.1	Useful in post-production environments
017	Post Pro.2	Useful in post-production environments
018	Narration	For the spoken word
019	Expander1	Expander setting
020	Expander2	Another expander setting
021	Slow Attack	An expander with a slow attack
022	E Guitar Clean1	Expander setting suitable for electric guitar

Table 5.7: Compressor/Expander preset library entries

Gate library entries These gate settings may be used as they are or used as jumping-off points for your own settings.

Program Number	Name	Comment
000	Noise Gate1	General noise gate setting
001	Noise Gate2	General noise gate setting
002	Kick Gate1	Suitable for bass (kick) drum
003	Kick Gate2	Another kick drum setting
004	Snare Gate1	Useful when recording snare drums
005	Snare Gate2	Another snare setting
006	Toms Gate	Use when recording the toms of a drum kit
007	Slow Gate	A gate with slow response
008	Bass Gate1	The settings suit a bass
009	Base Gate2	Another bass gate setting
010	E Guitar Clean1	Suitable for clean electric guitars
011	E Gt Distortion	Suitable for distorted electric guitars
012	E Gt Heavy Dist.	suitable for heavily distorted guitars

Table 5.8: Gate/Expander preset library entries

Trigger settings

As mentioned earlier, the DM-3200 can have sources assigned to triggers (up to eight), allowing dynamics processors to be triggered by a wide range of input signals.

The assignment of the eight input triggers is done from the ROUTING INPUT screen.

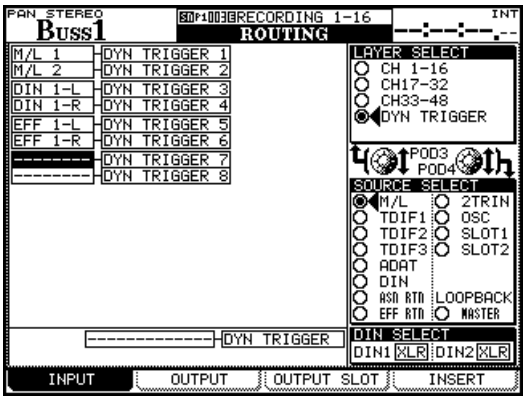


Figure 5.9: Assigning dynamics processor triggers

1 **Press the ROUTING key until the** INPUT **screen is shown.**

2 **Use POD 3 to select the** DYN TRIGGER **(dynamics trigger) option.**

3 **Use POD 4 to select the source group for the first trigger: mic/line inputs** (M/L)**, one of the three** TDIF **inputs, the** ADAT **inputs, the digital inputs** (DIN)**, the assignable returns** (ASN RTN)**, the returns from the internal effects** (EFF RTN**,** EFF1 L**,** EFF1 R**,** EFF2 L **and** EFF2 R)**, the input from the 2-track recorder** (2TRIN) **or the slot cards (1 or 2). Although the** OSC **(oscillator) and** LOOP-BACK **options are available, they are not particularly useful here.**

4 **Move the cursor to the** DYN TRIGGER 1 **field, and use the dial to select the input from the source group.**

5 **Press ENTER when the input is selected (you must do this) and move to the** DYN TRIGGER 2 **field.**

You can use POD 4 to select another source group at any time.

When you have set up the triggers, they are available for use in any gate or compressor/expander. Note that the same trigger can be used for many different processors.

TIP

*You can set up eight consecutive inputs as the eight input triggers by moving the cursor to the bottom of the screen (*BATCH SETUP*), selecting a group of eight inputs using the dial, and pressing* **ENTER***. This batch assignment can later be "fine-tuned", changing only one or two entries in the list, if required.*

EQ

The four-band EQ provided on the first 32 channel modules of the DM-3200 allows precise sound shaping, combined with flexibility, and repeatability, thanks to the library store and recall facilities.

To view the EQ settings for a module, press the **MODULE** key until the EQ page is shown.

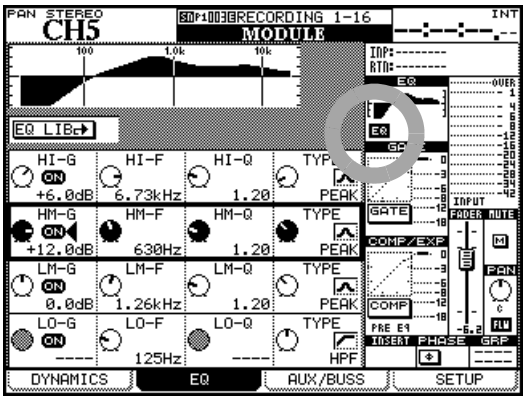


Figure 5.10: Module EQ screen

TIP

The instructions here refer to POD use, but you can put the encoders into EQ mode, and use the encoders to adjust individual EQ parameters for the selected channel (see "Encoders" on page 20 for full details). It is also possible to link the screen display to the encoders, or the other way round, so that changing one automatically changes the other. See "PREFERENCES" on page 34.

Use the cursor keys to move the "box" around the screen, and the four POD encoders to change the values of the gain (where appropriate), frequency, Q (where appropriate) and the type of filter for the selected band.

Turn the EQ on and off using the unshifted **EQ/DYN** key (see "Turning the processors on and off" on page 62), or by using the on-screen EQ button (circled in Figure 5.10, *Module EQ screen*)

Turn the individual band highlighted by the box on and off using the **ENTER** key.

As you make changes to the EQ setting, the graph at the top of the screen changes as does the one by at the top of the "global section".

All bands have the same frequency range: from 31 Hz to 19 kHz (in 112 steps).

The amount of gain is ±18 dB for all bands.

Q (where appropriate) can be set to any of the following 24 values: 8.65, 4.32, 2.87, 2.14, 1.71, 1.41, 1.20, 1.04, 0.92, 0.82, 0.74, 0.67, 0.61, 0.56, 0.51, 0.47, 0.44, 0.40, 0.38, 0.35, 0.33, 0.30, 0.28, or 0.27.

The types of EQ filter available are:

Low band: Low Shelf, Peak, HPF (high-pass filter)

Low-mid band: Peak or Notch

High-mid band: Peak or Notch

High band: High Shelf, Peak, LPF (low-pass filter)

Note that the following parameters are used by the different EQ filters:

Peak filter: Gain, Frequency, Q

Shelving filters (high and low): Gain and Frequency

HPF and LPF: Frequency

Notch filters: Frequency and Q

Unused parameters are grayed out on screen or if encoders are elected to set the EQ, the encoders for the unused parameters are disabled, and no indicators are lit.

Encoders and EQ The encoders can be used to make EQ settings (unmodified **ENCODER** key 4) as described in "Encoders" on page 20.

EQ library

You can recall and use preset EQ settings from the DM-3200 library, as well as storing your own settings to user areas of the library for further use (see "Library management" on page 30 for details of how library functions work with the DM-3200).

To access the EQ library, move the cursor to the on-screen EQ LIB button, and press **ENTER**. The EQ library screen appears:

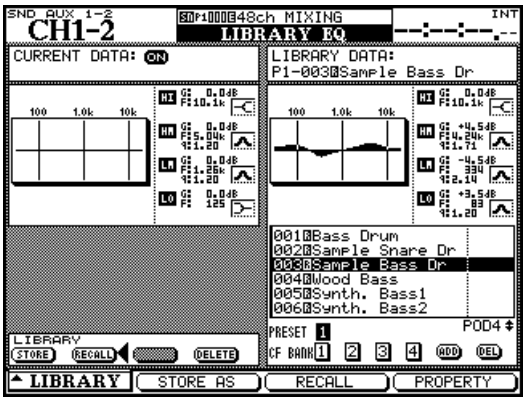


Figure 5.11: EQ library

Use the POD 4 encoder or wheel to scroll through the library entries in the selected preset or CF card bank, and POD 3 switch to recall the entry.

A graphical and numerical representation of the highlighted EQ library setting, as well as the currently-loaded setting, are shown.

The preset library entries have names such as Wood Bass or Sample Snare, but of course they can be used for any sound source.

Number	Title	Comment
00	Snare Drum	Suitable for a snare drum
01	Bass Drum	Suitable for kick (bass) drum
02	Sample Snare Dr.	EQ for a sampled snare sound
03	Sample Bass Dr.	For a sampled kick (bass) drum sound
04	Wood Bass	Upright plucked double bass
05	Synth. Bass 1	For synth bass sounds
06	Synth. Bass 2	
07	Acoustic Guitar	Suitable for acoustic guitars
08	Electric Guitar 1	For electric guitars
09	Electric Guitar 2	
10	Electric Guitar 3	
11	Violins & Violas	For the upper instruments in a string ensemble
12	Cello & C.Bass	For the lower instruments in a string ensemble
13	Brass	For brass sections
14	Piano	Acoustic piano setting—starting point for experimentation
15	Pad fits to VOX	For "pad" sounds to match vocals
16	Vocal 1	Vocal EQ starting points
17	Vocal 2	
18	Hum Cancel	Elimination of AC (mains) noise
19	Radio Voice	"Squawk-box" vocal setting

Table 5.12: EQ library presets

Aux and buss setup

The third page of the MODULE screens provides a way to view and make the aux send settings and the buss panning between odd- and even-numbered busses (channel modules only in stereo mode, not surround mode when the buss pan follow mode is off—see "BUSS PAN Follows ST PAN" on page 34). Note also the on-screen FLW button below the pan pot on the right of the screen, which links buss and stereo panning.

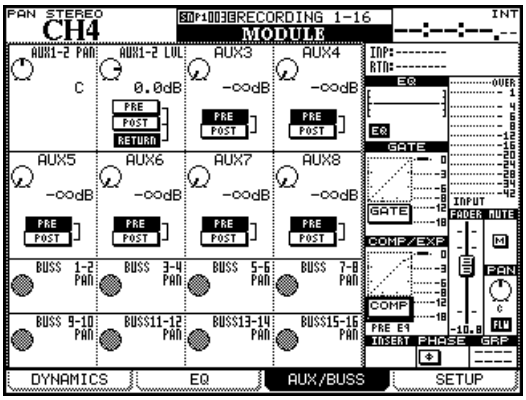


Figure 5.13: Module aux and buss screen

Use the cursor keys to move the "control box" of four PODs up and down.

For unlinked aux sends, the four POD encoders are used to set the aux send levels for the individual aux sends.

For linked aux sends, the PODs are paired, with the left encoder being used to set the pan (or balance in the case of linked channels) position between the two aux sends, and the right encoder setting the level.

Use the cursor keys and **ENTER** key to set the pre/post aux send position.

NOTE

Aux 1-2 have an extra option here. In addition to being able to select the pre- and post-fader aux send position, channels 1 through 32 can also use the "return" signal ("Input routing" on page 47) as an aux send, allowing recorder returns to be used as a cue feed to the studio, etc.

Aux send screens (unlinked) Pressing the dedicated **AUX** function keys brings up appropriate screens which allow the viewing and setting of aux sends for all channels:

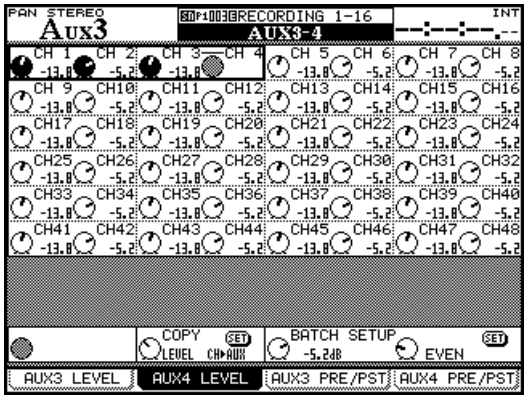


Figure 5.14: Aux send screen (unlinked)

Moving the cursor around the screen highlights four on-screen controls where the POD encoders are used to set the values. In the case of linked channels, the left POD of the pair is used to set the level.

The POD 2 key is used to select the screen for the even-numbered aux send level setting.

Copying settings between aux sends and channel levels At the bottom of the screen is a facility that allows the copying of channel levels to the aux sends, or the other way round. This is useful when setting up a studio cue monitor mix based on the channel settings.

Use POD 2 to select between CH>AUX and AUX>CH, and press **ENTER**. A popup appears to confirm this setting (**ENTER** to confirm, cursor keys to cancel).

Source selection POD keys 3 and 4 select the aux send source screens. Select between pre-fader (PRE) or post-fader (POST). For aux 1 and 2 only, the RETURN input can also be selected as the send source (for studio cue monitoring).

Linked channels are controlled together by the odd-numbered (left) POD of the pair.

The BATCH SETUP section at the bottom right of the screen allows the setting of the same source for groups of eight channels, or for all (ALL) channels together. A popup appears to confirm this setting (**ENTER** to confirm, cursor keys to cancel).

Aux send pan/balance screens (linked)

When two aux sends are linked (for stereo cue or to feed the stereo inputs of an effects processor, for example), these screens change slightly.

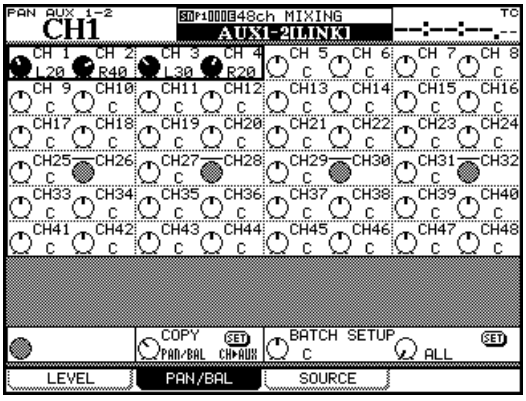


Figure 5.15: Aux pan/balance screen (linked)

In addition to the screen controlling the linked send levels to the linked aux sends and the screen controlling the sources to the linked aux sends, there is a third screen, which provides the ability to view and adjust the pan (and balance for linked channels) settings to the linked aux sends (accessed with the POD 2 key).

This works in the same way as the previous screens, with the addition of a batch pan setting facility.

There is also a way of copying the current channel pan settings to the aux send pair pan settings (and the other way round). This can be used for setting up monitor cue mixes based on the stereo mix, or simply for echoing the current position in the mix when feeding stereo effect processors.

Use the POD 2 encoder to select whether to copy the pan/balance settings from the channels to the aux sends (CH→AUX) or from the aux sends to the channels (AUX→CH). Use the on-screen SET button to actually perform the parameter copy. A popup appears to confirm this setting (**ENTER** to confirm, cursor keys to cancel).

Using the encoders You can use the first eight encoders in AUX mode (see “Encoders” on page 20) to set the aux send levels for the selected channel module.

Note that if the preference for the encoders to follow the current screen is set (see “Encoder Mode Follows Current Screen” on page 34) the encoders will automatically change to the aux send and pan/balance mode when the aux screens are selected.

Module setup

The fourth channel module screen is called the SETUP screen and allows the setting of general parameters affecting the use of the module. Note the block diagram at the top of this screen, showing the current configuration of the channel module, along with the enabled/disabled status of the components (dynamics processors, EQ, etc.). As changes are made to the setting, this block diagram is updated to reflect the current status of the module:

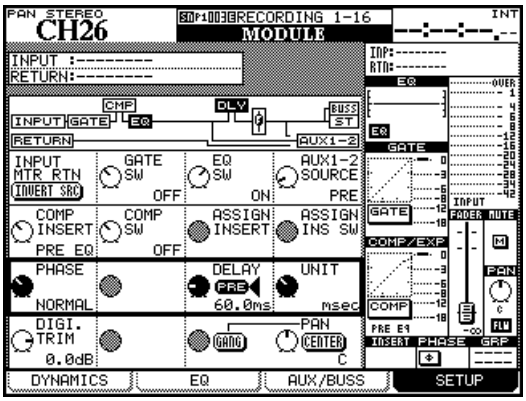


Figure 5.16: Channel module SETUP screen

As with the other module screens, the cursor keys are used to move a box around the screen, and the POD encoders and **ENTER** key are used to make changes to the parameters.

NOTE

Note that buss modules allow the setting of Aux 1–2 level and pan here, together with stereo level and pan. Aux modules provide only stereo level and pan here, and the stereo buss provides only Aux 1–2 level and pan.

INPUT/RETURN selection On channels 1 through 32, as explained earlier, two different inputs may be selected, which may be switched or "flipped" globally in blocks of eight ("Flipping the channels" on page 48) or may be changed on this screen using the on-screen INVERT SRC (source invert) button (POD 1, first row).

When you press **ENTER**, a popup message asking you to press **ENTER** once more to confirm the flip operation (or a cursor key to cancel).

GATE switching Use POD 2 on the first row as a rotary switch to turn the gate for the module on or off.

AUX 1-2 SOURCE It is suggested that the aux 1 and 2 sends are used as studio foldback (cue) sends. The fourth POD control on the first row of this screen allows you to choose pre-fader or post-fader inputs or the return channel to be used as the feed to aux 1-2 (this is independent of the input return selection).

Dynamics insert point Depending on the basic type of processor (compressor or expander) that has been recalled from the library, the screen may show COMP (compressor) or EXP (expander). Use POD 1 to move the insert point pre- or post-EQ.

Dynamics on/off Depending on the basic type of processor (compressor or expander) that has been recalled from the library, the screen may show COMP (compressor) or EXP (expander) here. Use the POD 2 encoder (second line) to turn this dynamics processor on or off.

Assignable insert position Use the POD 3 encoder (second line) to turn the insert point of the assignable "soft" insert to pre- or post-fader position.

Phase control Use the POD 1 encoder of row 3 to reverse the input phase of the channel module. If two channels are linked, then a phase control for each channel will be shown (POD 1 and POD 2). Also, see "Phase/trim/delay" on page 71 below.

Module delay A delay can be applied to channels on an individual basis, to compensate for the latency of other equipment, the acoustic delays caused by microphone placement, etc. The delay time can be expressed in milliseconds or in samples.

The delay point can also be set to be pre- or post-module (see also "Delay" on page 72).

Use the POD 3 encoder to set the delay time (in 0.1ms or single sample steps).

Move the cursor to the pre-post field and choose either pre- or post-module delay.

The maximum delay time is 16383 samples, at every sampling frequency. In milliseconds, this equates to:

FS	Maximum delay (ms)
44.1	371.5
48	341.3
88.2	185.7
96	170.7

Table 5.17: Channel delay

Use the POD 4 encoder to switch between milliseconds and samples as the units in which the delay time is set and displayed.

Digital trim Allows the module's input to be adjusted. This is post-phase and pre-gate. It is entirely independent of the analog **TRIM** controls on the mic/line inputs.

The value of this digital trim can be adjusted from a cut of –50dB to a boost of +10dB in 0.5dB steps. Also see "Phase/trim/delay" on page 71 below.

Dithering (stereo buss module only) When going from 24-bit to 16-bit, using dithering is often a good way of reducing noise, etc. The POD 2 encoder can be used to set dithering Off (24-bit) or to the 16-bit (On) setting. The exact form of bit-reduction used can be set here as well as in the DIGITAL FORMAT screen (see "Digital I/O setup" on page 41): TRUNCATE, DITHER and NOISE SHAPED.

Pan and balance settings Many of these settings are dependent on whether the channel being edited is linked to another channel, as well as to whether the project is a stereo or surround project.

The POD 4 encoder is used to set the pan or balance. Beside the on-screen representation of this control is a CENTER button. Use this to center the pan or balance setting easily.

In the "normal" (unlinked, stereo) case, the odd-numbered (left) panpot of a pair of channels can be ganged together with the even-numbered (right) panpot. Use the on-screen GANG button to link the panpots of the channels in this way.

A linked pair of channel modules has the pan control of a mono channel replaced by a balance control. In the case of such a control, no ganging of control is possible, but two other controls are provided.

The first, controlled by the POD 2 encoder, allows either of the two modules to used as a mono signal (LMono, Rmono) or the two together as a stereo signal (STEREO). In the first two cases, the balance control effectively acts as a pan control).

The second control, set using the POD 3 encoder, controls the width of the stereo image created by the two controls from a mono point source (center) to a stereo (counterclockwise) image. Turning the pointer clockwise from the center reverses the left and right channels.

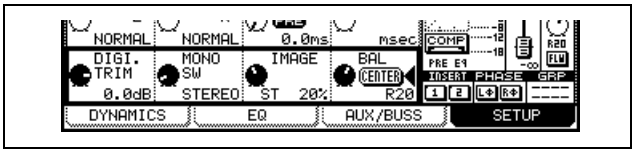


Figure 5.18: Linked pair balance controls

Phase/trim/delay

Phase The phase of an input signal, as explained above, can be set either to normal or reversed.

Use the ASSIGN PARAMETERS screen ("Global module settings" on page 60) to view and set the phase for all input at once.

Digital trim You can also set the digital trim value from a common screen. Press the **DIGI. TRIM/DELAY** key (**ALT** + **PAN**) to bring up the trim screen.

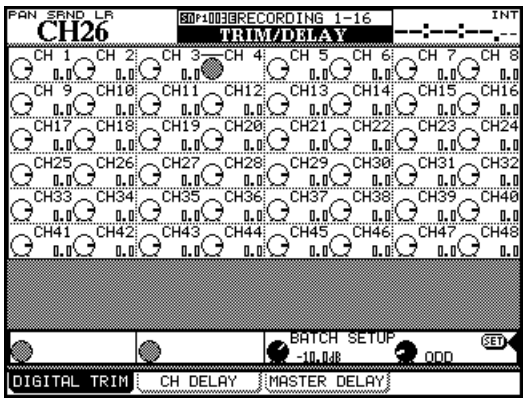


Figure 5.19: Digital trim setting

Use the cursor keys to select blocks of four channels and the PODs to set the values.

You can also set all, odd-numbered, even-numbered or blocks of eight channels to the same value using the BATCH SETUP facility at the bottom of the screen. Use the **ENTER** key to SET the value set with the POD 3 encoder to the channels chosen with POD 4.

Delay You can "slip" modules relative to each other in order to compensate for microphone placement, etc. This is the second tab of the DIGITAL TRIM/DELAY screen (it can also be set from the individual module screens).

As with other screens, you can use the cursor to move around and highlight the settings for four modules, and the POD encoders to adjust these settings.

The BATCH SETUP works in the same way as the digital trim described above, with a few additions.

First, POD 1 can be used to change the position of the delay between pre-and post-fader for all channels. Additionally, POD 2's encoder changes the unit in which delay is measured between samples and milliseconds.

POD 3 and 4 and the **ENTER** key work in the same way as they do for the digital trim.

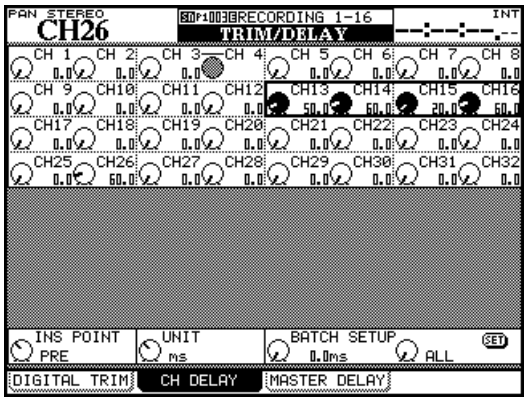


Figure 5.20: Channel delay screen

In addition to the channel delay, aux, buss and stereo modules can also have delay added.

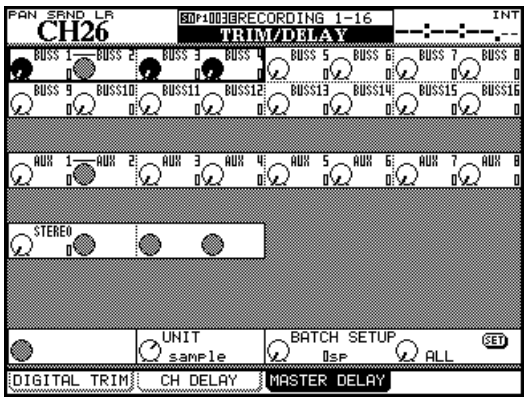


Figure 5.21: Master delay screen

The operational difference between this and the channel delay screen is that the pre/post setting is not available on this screen.

Stereo linking

You can link two modules (channel modules, busses and aux sends) as stereo pairs when working with stereo input sources or stereo effect sends, etc.

When modules are linked, setting the following parameters (where these are available) on one of the paired modules echoes the settings on the other module of the pair:

- Digital trim
- Gate settings
- Compressor settings and insertion point
- EQ settings
- Aux send levels/pan-balance setting/pickoff point
- Mute
- Fader level
- Assignment
- Delay time
- Solo settings
- Grouping
- Automation status
- Pan mode

Where these settings are made using physical controls, moving one control of the pair will move the other control of the pair, and will affect the settings.

Only adjacent modules can be linked, with the odd-numbered module being the left channel of the pair (that is, 1 and 2 can be linked, but 2 and 3 cannot).

To link modules:

1 **Press and hold the SEL key of one module of the pair to be linked.**

2 **Press the SEL key of the second module. A popup message appears:**

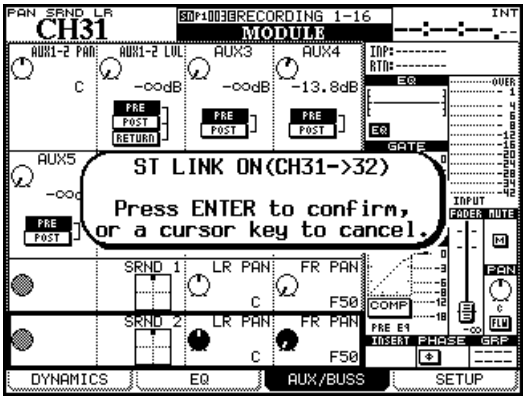


Figure 5.22: Linking modules

3 **Press ENTER to link the two modules, or a cursor key to cancel the operation.**

- **Unlink modules in the same way (press and hold one SEL key of the pair, and press the other SEL key to bring up a popup message).**

It is also possible to use the ST LINK screen brought up using the **ST LINK/GROUP** key.

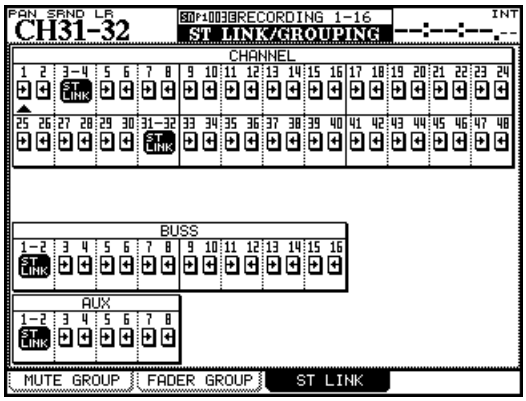


Figure 5.23: Stereo linking screen

Use the cursor keys or channel **SEL** keys to move the cursor and the **ENTER** key to make or break links.

No popup message appears when making or breaking stereo links in this way.

Balance One major difference between stereo linked channels and individual mono channels is in the pan and balance controls (see "Pan and balance settings" on page 71).

Linked dynamics Another major difference lies in the way that triggers, etc. are set for the dynamics processors of the module. See "Dynamics processors" on page 62 for details of how this works.

Mute groups

In each mute group of channels, there is one master channel.

Altering the mute status of this master changes the status of the slave channels of the group.

Slave channels can change their status independently of the rest of the group. A slave channel can belong to only one group at a time.

Use the **LINK/GRP** key to bring up the links screens:

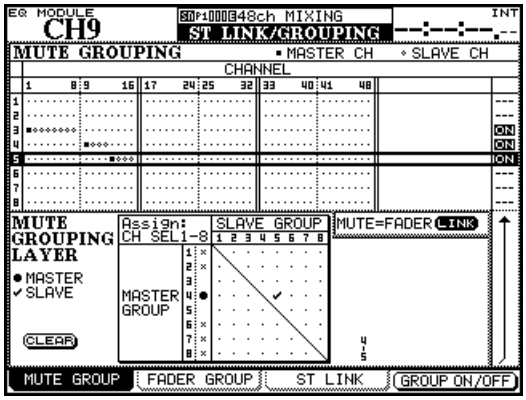


Figure 5.24: Mute grouping

Use the cursor to highlight a group (numbered at the side of the screen) and use the channel **SEL** keys to add the channels to the group. Change fader layers if necessary, to add other channels to the group.

The first channel added to the group becomes the master, marked by a solid "blob". The **SEL** key flashes, when the group is highlighted on screen.

Other channels can be added to the group following the master, marked by hollow "blobs" (if a channel already belongs to a group as a slave, it is removed from its original group). Slave channels in a group have their **SEL** key lit.

To remove a channel from a group, press its **SEL** key so that it is unlit.

Clearing groups Pressing the flashing master SEL key brings up a popup panel:

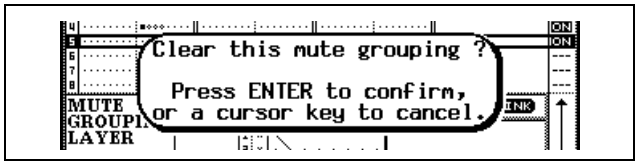


Figure 5.25: Clearing a group

Pressing **ENTER** removes the whole group (cursor keys cancel the clear operation and leave the group as is).

The POD 4 switch or **ENTER** turn the highlighted group on or off, but do not clear the settings.

Grouping groups A group can become a sub-group of another group, using the matrix at the bottom of the screen.

Move the cursor so that it highlights a master group (down the left side of the matrix—the **SEL** key corresponding to the master group lights) and use **SEL** keys 1 through 8 (regardless of layer) to set sub-groups.

A "tree" diagram appears at the side of the matrix as you set up the groups:

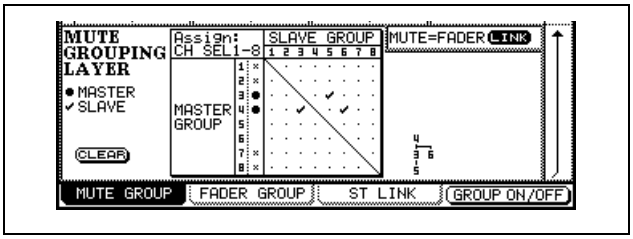


Figure 5.26: Grouping groups

In Figure 5.26, *Grouping groups*, group 5 is controlled by group 3, which in turn is controlled (together with group 6) by group 4.

In other words, the **MUTE** key of the master channel of group 4 affects the **MUTE** keys of all channels of groups 3, 5 and 6.

Linking fader groups to mute groups The on-screen MUTE->FADER LINK button allows the settings made for the mute groups to be transferred to the fader groups.

Fader groups

These work in the same way as for mute groups.

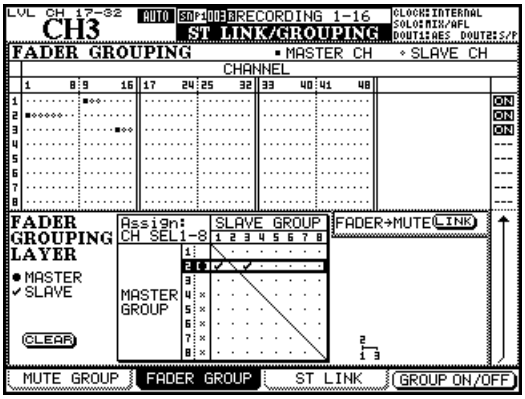


Figure 5.27: Fader grouping

Master and slave channels are set for each group using the **SEL** keys, and groups can be grouped in exactly the same way as mute groups.

Groups can be turned on and off.

Although these settings and actions are independent of the mute group settings described above, there is a FADER->MUTE LINK on-screen button that allows the settings made for the fader groups to be transferred to the mute group settings.

TIP

Either fader or mute groups can also be used as the source for "solo groups", where pressing the SOLO key of the master channel will solo all slave channels. See "SOLO" on page 35.

Surround operations

There are several screens and functions which change from those described previously when a surround mode is selected.

There are two surround matrices available, which can be assigned and mixed differently, but each matrix must be of the same format (for example, it is not possible to have an LCRS and 5.1 surround setup at the same time).

Changing surround mode

The surround mode is set from the PAN/BAL SURROUND MODE screen:

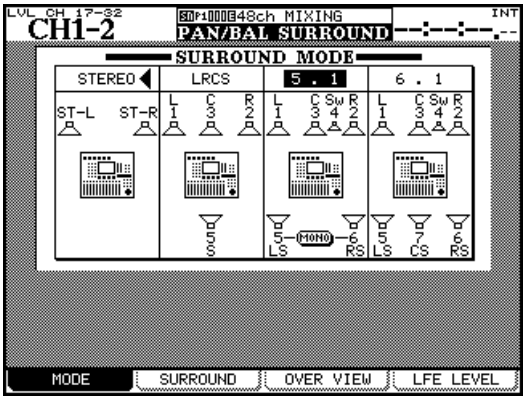


Figure 5.28: Selecting surround mode

Use the cursor keys to move the triangle cursor between STEREO, LRCS, 5.1 and 6.1.

Press **ENTER** to confirm the selection. A popup message appears asking you to press **ENTER** again to change the surround mode, or a cursor key to cancel the operation.

WARNING

To avoid possible damage to speakers and equipment, we recommend that you turn off all monitoring equipment when changing the surround mode.

Note that when the 5.1 option is selected, the rear speakers can be linked as MONO using the on-screen switch.

Buss assignments When a surround mode is selected, the 16 busses are used to feed the surround channels as follows (busses 9 through 16 are used for surround 2 and are assigned in the same pattern as 1 through 8):

Buss	Stereo	LCRS	5.1	6.1
1	L	L	L	L
2	R	R	R	R
3	L	C	C	C
4	R	—	LFE	LFE
5	L	S	LS	LS
6	R	—	RS	RS
7	L	—	—	CS
8	R	—	—	—

Table 5.29: Buss assignments in surround mode

These assignments cannot be changed.

Assigning channels to surround busses

There are two modes in which the surround busses can be assigned: pan mode on and pan mode off.

This setting is made by pressing and holding the **SHIFT** key together with one of the **ASSIGN** keys.

Note that this pan mode works in a slightly different way to the pan mode in stereo setting (“Pan switch” on page 52). Note especially:

- The Buss Link and Pan preference has no meaning in surround mode. Channels can always have the pan mode turned on and off independently.
- There are two surround matrices. These can have pan mode turned on and off independently for each channel (**SHIFT** + **ASSIGN 1** through **8** for the first matrix, and **SHIFT** + **ASSIGN 9** through **16** for the second).

When pan mode is off, the channel settings in the BUSS ASSIGN screen look like channels 1 through 4 in Figure 5.30, *Surround assignment*.

When pan mode is on, the channel settings in the BUSS ASSIGN screen look like channels 5 through 8 in Figure 5.30, *Surround assignment*:

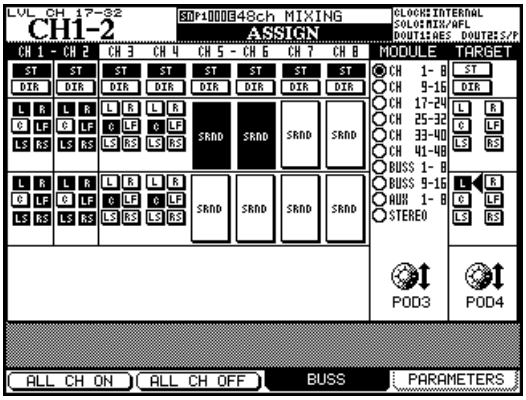


Figure 5.30: Surround assignment

The difference between these is that when pan mode is off, the channels can be assigned individually to the surround channels (following Table 5.29, *Buss assignments in surround mode*).

When pan mode is on, the channels can be assigned to the surround matrices as a whole (either 1 or 2).

- **In both cases, the POD 3 encoder is used to set the modules displayed on screen (the SEL keys can also be used).**
- **The POD 4 encoder is used to select the busses to which the module is assigned, and the ENTER key is used to assign the module, or release the module from the assignment.**
- **The ASSIGN indicators also mirror the current assignment status, and the ASSIGN keys can also be used to make or break assignments.**

Note that when the pan mode is on, all the **ASSIGN** indicators of one buss group (surround matrix) are turned on with one key.

Surround panning

There are two ways of viewing and setting the pan position in the surround modes: an overview and a detailed channel view (the L-R balance can also be set in the FADER screen).

In the overview screen, 24 modules' basic surround panning facilities are displayed:

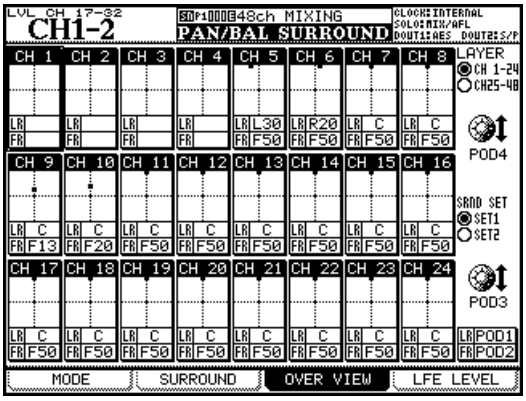


Figure 5.31: Surround overview

Modules where the pan switch is off (channels 1 through 4 in Figure 5.31, *Surround overview*) cannot have any parameters changed.

However, for channels with the pan mode on (channels 5 through 24 in Figure 5.31, *Surround overview*), the following controls may be used:

- **Use the POD 3 encoder to select either surround matrix 1 or 2.**
- **Use the POD 4 encoder to select the first 24 channel modules or the second 24 modules.**
- **POD 1 moves the channel position (shown as a dot in the square) around from left to right (LR), and POD 2 moves it from front to rear (FR).**

NOTE

In this screen, and the module surround screen, settings are made independently for each channel, regardless of the current channel link status.

Module screen When the pan mode is on, the left-right and front-rear pan settings can be made from the module screen:

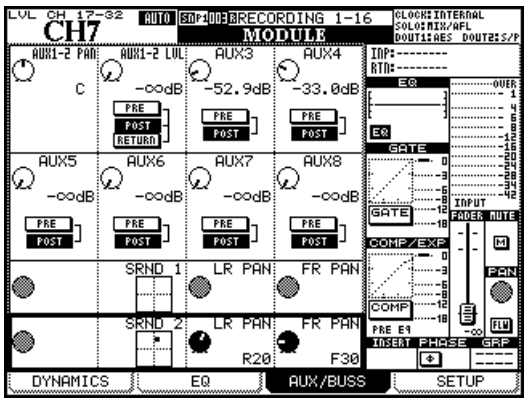


Figure 5.32: Module surround panning

In Figure 5.32, *Module surround panning*, pan mode is off for surround matrix 1, and so the pan controls are disabled for this matrix.

The SURROUND screens (Figure 5.33, *Surround panning (pan mode on)*), showing the settings for individual modules with the pan mode provide more complete control over the surround settings (surround screens with pan mode off are shown in Figure 5.34, *Surround screen (pan mode off)*):

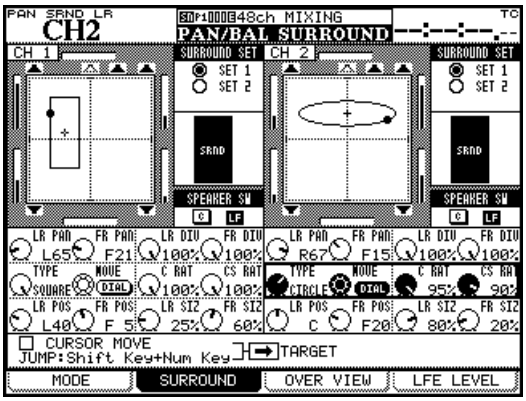


Figure 5.33: Surround panning (pan mode on)

Each module has a graphical representation of the current setting for the currently selected matrix. Channels to which the module is currently are assigned are shown as filled symbols; unassigned channels are shown as hollow symbols. This graphical part of the screen is for display only—use the cursor keys to navigate to the on-screen controls below and to the right of this circle.

- **The SURROUND SET radio buttons to the right of the circle allow the selection of either one of the surround matrices. Use the ENTER key to select one of these matrices.**
- **Below that, the SPEAKER SW on/off switches for the center (C) and LFE (LF) speakers are shown. Use the ENTER key here.**
- **Below this, there is a switch for the center speaker (C), usually reserved for dialog in movie post-production, and another for the low-frequency speaker (LF). Use the ENTER key for these.**
- **Below this, use the POD 1 encoder to set the left-right pan position, and POD 2 for the front-rear. PODs 3 and 4 set the left-right and front-rear divergences respectively.**

Note the "bargraph" displays shown on the screen beside each speaker in the matrix which show the relative levels of the channels as the position is moved.

Pattern panning In the second row of POD controls, POD 1 sets the type of pattern controlled by the wheel (TYPE). The choices are: CIRCLE (where the signal follows a circular path around the center), SQUARE (a square path) and two SLANTs (diagonally across the sound stage). POD 2 moves the signal around the pattern, and POD 3 and POD 4 control how much of the signal is sent to the center front (C) and center surround speakers (CS).

As mentioned, the wheel or POD 2 may be used used to move the signal of the channel whose **SEL** key is selected along the pattern. The position of the cursor on the screen does not determine the channel whose signal is edited.

The last row of PODs allows the pattern to be sized and moved relative to the center of the sound stage. POD 1 (LR POS) and POD 2 (FR POS) move the pattern left-to-right and front-to-back respectively, and POD 3 (LR SIZ) and POD 4 (FR SIZ) affect the size. See Figure 5.33, *Surround panning (pan mode on)* to see how these parameters can be used to affect the sound pattern.

Using the cursor keys As well as the above methods, when the CURSOR MOVE checkbox is selected, the cursor keys do not move the cursor around the screen, but move the signal around the sound stage. The TARGET box selects which channel is currently controlled in this way. Press **ENTER** to uncheck the box and start using the cursor keys in the usual way again.

Jump keys Press and hold **SHIFT** and press one of the numbered **SCREEN MODE** keys to move the signal to the appropriate point in the sound stage (**7** is front left, **8** is front center, **9** is front right, etc.).

Pan mode off When pan mode is off, the screen is much simpler. No pan controls are available, and the only controls which may be set are the surround matrix selection and the individual speaker selection on-screen buttons.

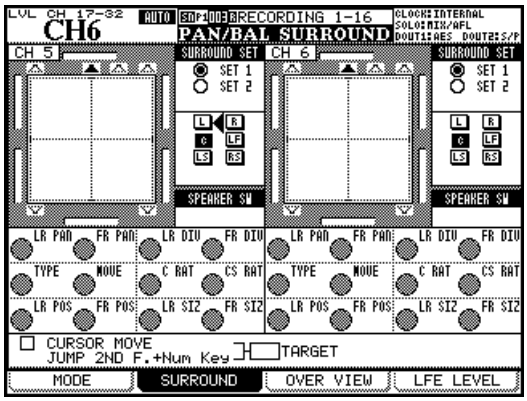


Figure 5.34: Surround screen (pan mode off)

LFE level

The amount of signal sent by each channel to the LFE output can be set in the LFE LEVEL screen:

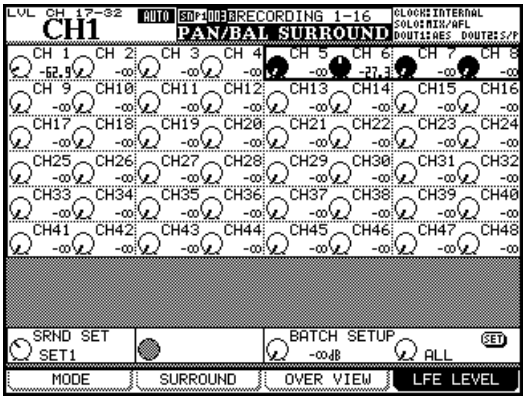


Figure 5.35: LFE level

Select the channel or use the cursor to move the box cursor around the screen, and the POD encoders to adjust the LFE level.

NOTE

If a channel is not assigned to the LFE, adjusting the level here will have no effect.

At the bottom of the screen, you can use the POD 1 encoder to select surround matrix 1 or 2.

POD 3 encoder allows a batch LFE level to be set, and POD 4 sets the scope of the level setting (ALL, ODD, EVEN, or groups of eight channels) for the currently selected surround matrix.

Use **ENTER** to make the batch setting.

Snapshots

Mixer settings can be stored in a library and recalled, either manually from the control surface, or remotely through MIDI Program Change messages.

Snapshots contain the following data:

- EQ parameters
- Dynamics parameters
- Fader and mute settings
- Groupings and group settings
- Aux send settings (level, status, pan-balance)
- Pan and balance settings, image, mono switch
- Surround parameters and pan mode
- Link settings
- Digital trim
- Phase switch
- Digital delay time and point
- Buss, stereo and direct assignments or surround assignments
- Effect parameters
- routing settings

These are all stored together with a transition time, which allows faders to move gradually from one position to the new position.

In addition, there are also some “safety switches” which prevent certain parameters being re-set when the snapshot is recalled (for example, it might be tedious to have all signals re-routed when a new snapshot is recalled).

Each snapshot can, of course, be named for easy recognition later.

Snapshot library management

The snapshot library screen is accessed through the **LIBRARY** key:

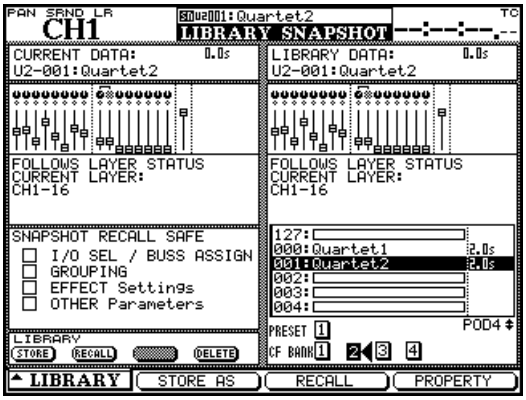


Figure 5.36: Snapshot library

If the snapshot library is not shown, use the POD 1 encoder and key to select the snapshot library, as shown in Figure 2.27, *Library selection pull-up menu*.

As the wheel or POD 4 encoder is used to scroll though the list of stored snapshots in the current bank or preset list, the representation of the current fader layer in that snapshot is shown on the right of the screen (the current settings are provided for reference on the left of the screen).

The RECALL SAFE list on the lower left of the screen allows various parameters to remain unchanged on recall when a snapshot is recalled. These are:

- I/O routing and buss assignment settings
- Mute and fader group assignments
- Current effect settings
- The OTHER parameters (i.e. those not listed above, allowing you to change only grouping, for example, while keeping fader settings, EQ settings and routing).

- **Use the POD 3 switch or the cursor at the** RECALL **on-screen button to recall the currently selected library entry. A popup message appears briefly.**

Storing snapshots

Snapshots may be stored to any of the four banks on the CF card.

- **The cursor keys are used on the right side of the screen to select the bank in which the snapshot is stored, and the POD 4 encoder is used to select the destination. Alternatively, the direct LIBRARY keys may be used for this purpose.**

Either press the POD 2 switch (STORE AS) or use the on-screen STORE button and **ENTER**:

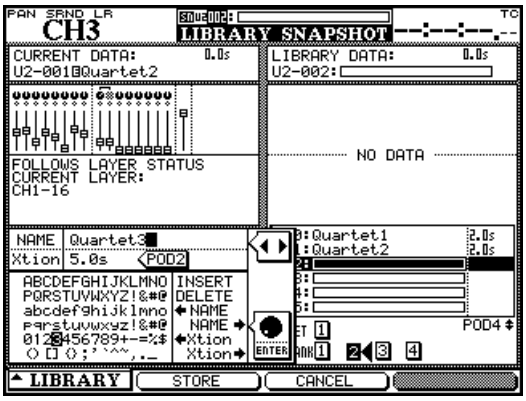


Figure 5.37: Storing a snapshot

- **On the left side of the screen, use the wheel and ENTER key to edit the name of the snapshot. The name can be copied from an existing entry and pasted to a library entry.**
- **POD 2 is used to alter the transition time** (Xtion)**. This time can also be copied to and from library entries.**
- **Finally, the POD 2 switch** (STORE) **is used to store the current settings to the selected slot (or POD 3** (CANCEL) **is used to cancel the operation). If a snapshot already exists in the destination area, a popup message appears to confirm the overwriting operation.**

Information about a snapshot

When the library screen is visible, pressing the POD 4 switch brings up a popup information panel about the snapshot whose library entry is highlighted in the right-hand list.

The panel contains the following information:

- Name and transition time.
- Creation date and time (card bank data only).
- Project with which the snapshot is associated, together with the sampling frequency used (card bank data only).

The DM-3200 incorporates two internal effects: a TASCAM multi-purpose effect and a TC Works reverb. This section discusses the setup and use of these effects.

Routing the effects

As explained in "Routing" on page 47, internal effect inputs and outputs are treated as sources and destinations for routing.

The two screens shown here are examples of how the internal routing is used with the internal effects.

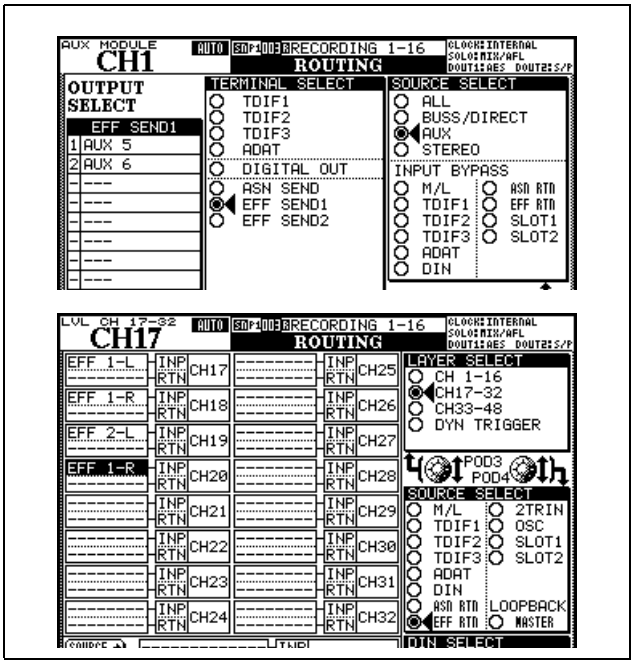


Figure 6.1: Internal effect send and return routing

In the OUTPUT routing screen, the Aux sends are selected as outputs, and the terminal destination is selected as one of the internal effects.

Here, Aux 5 and Aux 6 are selected as aux sends to effect 1 (effect 2 would be set up in the same way).

For the return, the INPUT screen is used. The source is set to EFF RTN (effect return) and channels 17 through 20 are selected as effect returns.

WARNING

Since there are no dedicated effect returns, the channels used for returns also have aux feeds that may accidentally be used to feed the effects being returned on that channel. If this is done, there will be a feedback loop that may damage your hearing, and your monitoring equipment.

Setting up the effects

The **EFFECT** key brings up the effect screens, where the basic setup of the internal effects is done.

First, an effect is recalled from the preset library, or from a setting previously stored on a CF card.

When the effect setting has been recalled, it may be used as it is, or edited using the editing screen.

After pressing the **EFFECT** key, pressing the POD 2 switch brings up the effect 1 library, for managing the library effects for the first effect loop, and pressing the POD 4 switch brings up the effect 2 library, for managing the other effect loop (shown in Figure 6.2, *Effect library screen* below):

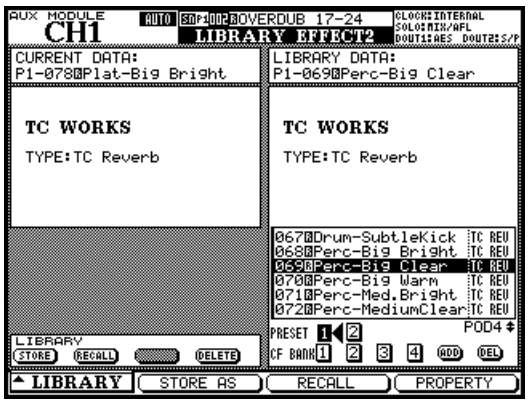


Figure 6.2: Effect library screen

Use the cursor keys and **ENTER** to select an effect from PRESET 1 (TC Works reverb), PRESET 2 (TASCAM effect) or any of the four memory banks on the CF card.

Use the wheel or PD 4 encoder to scroll through the entries and press the POD 3 switch to recall the entry to the effect loop.

Press the **EFFECT** key once more to return to the setting screen:

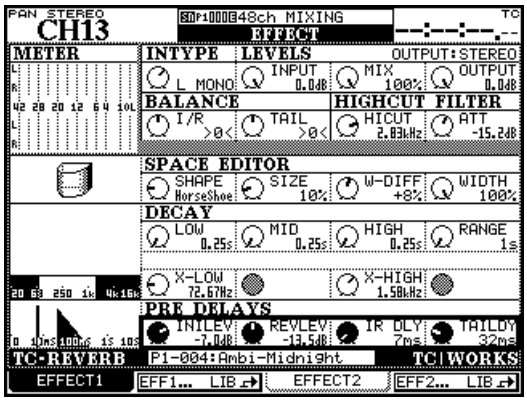


Figure 6.3: Effect setting

The exact screen depends on the effect selected, as explained below, but the top row is common to all effects, whether TASCAM or TC Works:

POD 1	POD 2	POD 3	POD 4
INPUT type selection (mono or stereo)	INPUT Sets the input level to the effect	MIX From dry (0%) to fully wet (100%) For guitar compressor, distortion, compressor, exciter, De-esser: Bypass — On or Off	OUTPUT output level

Figure 6.4: Common effect parameters (Row 1)

TASCAM effect parameters

The TASCAM effects (chorus, de-esser, delay, distortion, exciter, flanger, guitar compressor, phaser, pitch shifter, soft compressor) use the third row of PODs as follows (display labels are shown in parentheses in (UPPERCASE)). When the basic effect is chosen from the library, all on-screen controls change to match those of the base effect:

POD 1	POD 2	POD3	POD 4
Chorus (CHORUS**)**			
Rate (RATE) 0.0 Hz – 10 Hz	Depth (DEPTH) 0% – 100%	Pre-delay (PRE DLY) 0.05 ms – 500 ms	Feedback (FEEDBACK) 0% – 90%
De-esser (DE-ESSOR**)**			
—	Threshold level (THRESHOLD) –40 dB – –1 dB	Knee shape (KNEE) 0.50 – 1.00	Center frequency (CNTR FREQ) 1.0 kHz – 10.0 kHz
Delay (DELAY**)**			
Delay time (DLY TIME) 0.05 ms – 650 ms	Feedback time (FB.TIME) 0.05 ms – 650 ms	Feedback level (FEEDBACK) 0% – 90%	Feedback type (TYPE) Stereo/Ping-pong/Multi-tap
Distortion (DISTORTION**)**[a]			
–	Drive ratio (DRV RATIO) 0 – 42	Drive boost (DRV BOOST) x1 – x32	Drive EQ (DRV EQ) Overdrive 1/Overdrive 2/ Distortion 1/Distortion 2/ Amp 1/Amp 2

Table 6.5: TASCAM effect parameters

POD 1	POD 2	POD3	POD 4
Exciter (EXCITER**)**			
—	—	Sense (SENSE) 0 – 42	Frequency (FREQUENCY) 1.0kHz – 10.0kHz
Flanger (FLANGER**)**			
Rate (RATE) 0.0Hz – 10Hz	Depth (DEPTH) 0% – 100%	Resonance (RESONANCE) 0.00 – 1.00	Delay (DELAY) 0ms – 500ms
Guitar compressor (GUITAR COMPRESSOR**)**[a]			
—	—	Ratio (RATIO) 0 – 42	Attack (ATTACK) 0.1ms – 5.0ms
Phaser (PHASER**)**			
Steps (STEPS) 1–16	LFO rate (LFO RATE) 0.0Hz – 10Hz	LFO depth (LFO DEPTH) 0% – 100%	Resonance (RESONANCE) 0% – 100%
Pitch shifter (PITCH SHIFTER**)**			
Semitone shift (SEMITONE) –12 – +12	Fine pitch (FINE) –50 cents – +50 cents	Pre-delay (PRE DELAY) 50ms – 500ms	Feedback (FEEDBACK) 0% – 90%
Soft compressor (COMPRESSOR**) - uses 2 rows of PODs**			
Threshold level (THRESHOLD) –40dB – –1dB	Ratio (RATIO) 1:1.00 – 1:inf	Attack time (ATTACK) 0.05s – 5.00s	Release time (RELEASE) 50ms – 500ms
—	—	—	Knee shape (KNEE) 1.0 – 0.5

Table 6.5: TASCAM effect parameters

a. Mono in, mono out

All effects are stereo in, stereo out, except for the Distortion and Guitar Compressor TASCAM effects.

TC Works effect parameters

The TC Reverb effect is a complex reverb effect with many settings.

The top row is the same as for the TASCAM effect settings, and the other PODs are used as follows:

	POD 1	POD 2	POD 3	POD 4
Row 2	**BALANCE**		**HIGH CUT FILTER**	
	Initial reflections balance (I/R) <50 – >0< – 50>	Tail balance (TAIL) <50 – >0< – 50>	High cut filter frequency (HICUT) 20Hz – 16kHz	High cut filter attenuation (ATT) –40.0dB – 0dB
Row 3	**SPACE EDITOR**			
	Space editor shape (SHAPE) HALL, H.SHOE (horseshoe), PRISM, FAN, CLUB, SMALL	Space editor size (SIZE) 4% – 400%	Space editor wall diffusion (W-DIFF) –50% – 0% – +50%	Space editor stereo width (WIDTH) 0% – 100%
Row 4	**DECAY**			
	Low time (LOW) 0.25s – 64.00s	Mid time (MID) 0.25s – 64.00s	High time (HIGH) 0.25s – 64.00s	Scaling range (RANGE) 1s/4s/16s/64s
Row 5	**Decay crossover frequencies (**X-over**)**			
	Low crossover point (X-LOW) 20Hz – 16kHz	—	High crossover point (X-HIGH) 20Hz – 16kHz	—

Table 6.6: TC Reverb effect parameters

	POD 1	POD 2	POD 3	POD 4
	PRE DELAYS			
Row 6	Initial reflection level (INILEV) Off, –140dB – 0dB	Reverb tail level (REVLEV) Off, –140dB – 0dB	Initial reflection pre-delay time (IR DLY) 0ms – 160ms	Reverb feed delay time (TAILDY) 0ms – 100ms

Table 6.6: TC Reverb effect parameters

Effect libraries

The effect libraries allow the storage and recall of effects. They work in the same way as other libraries, allowing you to name settings and store them to card banks.

Effects can be stored in any of the card banks, and recalled to either of the effect slots.

See “Library management” on page 30 for details of how libraries are operated.

Preset TC Reverb effects

The preset TC Reverb effects available from preset bank 1 are:

Number	Name	LCD indication
000	Ambience - Bright 1	Ambi-Bright 1
001	Ambience - Bright 2	Ambi-Bright 2
002	Ambience - Bright 3	Ambi-Bright 3
003	Ambience - Dark	Ambi-Dark
004	Ambience - Midnight	Ambi-Midnight
005	Ambience - Mornin' Vocal	Ambi-MorninVocal
006	Ambience - Soft 1	Ambi-Soft 1
007	Ambience - Soft 2	Ambi-Soft 2
008	Ambience - Space	Ambi-Space
009	Box - Bright	Box-Bright
010	Box - Dark	Box-Dark
011	Chamber - Large, Dark	Chmb-Large,Dark
012	Chamber - Small	Chmb-Small
013	Chamber - Small, Dark	Chmb-Small,Dark
014	Chamber - Very Small	Chmb-Very Small
015	FX - Big Barrel Space	FX-BigBarrelSpce
016	FX - Big Pre Delay Slap	FX-BigPreDlySlap
017	FX - Bright Cymbals	FX-BrightCymbals
018	FX - Drum Boom Slap	FX-DrumBoom Slap
019	FX - Dry After Taste	FX-DryAfterTaste
020	FX - Icy Shower	FX-Icy Shower
021	FX - Lost in Space	FX-Lost in Space
022	FX - Neighbor (Hallway)	FX-NeighborHallw
023	FX - Neighbor 2 (Floor)	FX-NeighborFloor

Table 6.7: Preset TC Reverb effects

Number	Name	LCD indication
024	FX - Not so Dry After Taste	FX-NotsoDryAfter
025	FX - Short Non-Lin Like	FX-Short Non-Lin
026	FX - Slap Back	FX-Slap Back
027	FX - Steel Works	FX-Steel Works
028	FX - Steel Works 2	FX-Steel Works 2
029	FX - Subtle Slapback	FX-SubtleSlapbac
030	FX - Take Off	FX-Take Off
031	FX - Tight Bounce Around	FX-Tight Bounce
032	FX - Ultra Bright	FX-Ultra Bright
033	FX - Under The Surface	FX-Under Surface
034	FX - Wet After Taste	FX-WetAfterTaste
035	FX - Wet After Taste w/Rain	FX-W.A.T w/Rain
036	FX - Wood Floor	FX-Wood Floor
037	Tunnel - Bright	Tunn-Bright
038	Tunnel - Dark	Tunn-Dark
039	Tunnel - Tube	Tunn-Tube
040	Hall - Big Bright	Hall-Big Bright
041	Hall - Big Clear	Hall-Big Clear
042	Hall - Big Predelayed	Hall-BigPredelay
043	Hall - Big Warm	Hall-Big Warm
044	Hall - Cathedral 12s	Hall-Cathdral12s
045	Hall - Cathedral 7s	Hall-Cathedral7s
046	Hall - Church	Hall-Church
047	Hall - Dome	Hall-Dome
048	Hall - Huge Clear	Hall-Huge Clear
049	Hall - Huge Warm	Hall-Huge Warm
050	Hall - Last Row Stadium Con	Hall-LastRowStdm
051	Hall - Lush Ballad	Hall-Lush Ballad
052	Hall - Medium Bright	Hall-Med.Bright
053	Hall - Medium Clear	Hall-MediumClear
054	Hall - Medium Warm	Hall-Medium Warm
055	Hall - Outside the Stadium	Hall-OutsideStdm
056	Hall - Small Bright	Hall-SmallBright
057	Hall - Small Clear	Hall-Small Clear
058	Hall - Small Warm	Hall-Small Warm
059	Hall - Stage	Hall-Stage
060	Hall - Warm Vocal Hall	Hall-Warm Vocal
061	Drum - Boom Room	Drum-Boom Room
062	Drum - Drum Booth	Drum-Drum Booth

Table 6.7: Preset TC Reverb effects

Number	Name	LCD indication
063	Drum - Huge Low Tubular	Drum-HugeLowTubu
064	Drum - Low Tubular	Drum-Low Tubular
065	Drum - Snare Hall	Drum-Snare Hall
066	Drum - Snare Room	Drum-Snare Room
067	Drum - Subtle Kick Boom	Drum-SubtleKick
068	Perc - Big Bright	Perc-Big Bright
069	Perc - Big Clear	Perc-Big Clear
070	Perc - Big Warm	Perc-Big Warm
071	Perc - Medium Bright	Perc-Med.Bright
072	Perc - Medium Clear	Perc-MediumClear
073	Perc - Medium Warm	Perc-Medium Warm
074	Perc - Small Bright	Perc-SmallBright
075	Perc - Small Clear	Perc-Small Clear
076	Perc - Small Room	Perc-Small Room
077	Perc - Small Warm	Perc-Small Warm
078	Plate - Big Bright	Plat-Big Bright
079	Plate - Big Clear	Plat-Big Clear
080	Plate - Big Warm	Plat-Big Warm
081	Plate - Tight	Plat-Tight
082	Room - Bathroom	Room-Bathroom
083	Room - CD Master	Room-CD Master
084	Room - Dark & Mellow 5 sec	Room-Dark&Mellow
085	Room - Dry House	Room-Dry House
086	Room - Empty Garage	Room-EmptyGarage
087	Room - Empty Room	Room-EmptyRoom
088	Room - Empty Room, Small	Room-EmptyRoom S
089	Room - Large Garage	Room-LargeGarage
090	Room - Percussion Room	Room-Perc Room
091	Room - Small	Room-Small
092	Room - Small Damped Room	Room-S Dmp Room
093	Room - Small Yet Big	Room-SmallYetBig
094	Room - Small Yet Big w/Pre	Room-S.Y.B w/Pre
095	Room - Stage	Room-Stage
096	Room - Vocal Booth	Room-Vocal Booth
097	Room - Vocal Dry	Room-Vocal Dry
098	Room - Vocal Room	Room-Vocal Room
099	Room - Vocal Room 2	Room-Vocal Room2

Table 6.7: Preset TC Reverb effects

Preset TASCAM effects

The preset TASCAM effects available from preset bank 2 are:

Effect type	Preset No.	Title	LCD indication	Comments
Guitar Compressor				
	0	Guitar Comp.	Guitar Comp.	Basic compressor
	1	Classic Comp.	Classic Comp.	A classic compressor sound
	2	Sustain	Sustain	Compressor setting for guitar sustain
	3	Fat Comp.	Fat Comp.	A rather deeper, “fatter” type of compression
	4	Deep Comp.	Deep Comp.	Deep compressor sound
	5	Rhythm Comp.	Rhythm Comp.	A cutting compression setting for percussion
	6	Fast Attack	Fast Attack	A fast attack setting
	7	Slow Attack	Slow Attack	A rather slower attack setting
	8	Slap Comp.	Slap Comp.	Suitable for slap bass
	9	Percussive	Percussive	A clean sound, suitable for percussive guitar work, etc.
Distortion				
	10	Distortion	Distortion	A basic distortion sound
	11	Over Drive	Over Drive	A basic overdrive sound
	12	Blues 1	Blues 1	Suitable for a “front pickup” blues guitar style
	13	Blues 2	Blues 2	A rather stronger sound than the previous Blues 1 sound
	14	Vocal Dist	Vocal Dist	Useful if you need distorted vocals
	15	Rock 1	Rock 1	Suitable for 70s rock music
	16	Rock 2	Rock 2	Another kind of rock-type distortion
	17	Rhythm 1	Rhythm 1	A sweet-sounding distortion for backing work
	18	Rhythm 2	Rhythm 2	A lighter backing style distortion
	19	Bass Dist	Bass Dist	Use this distortion with bass
	20	Fusion 1	Fusion 1	Use this with solo instruments to fill out the sound
	21	Fusion 2	Fusion 2	Distortion used for a smooth, sweet fusion style
	22	British	British	A fat classic “single-coil” distortion
	23	Fuzzy	Fuzzy	A rather heavy fuzz distortion
	24	Guts	Guts	A “single-coil” overdrive sound
	25	Sweet	Sweet	A rather sweet, “rear pickup”-type solo sound
	26	Mellow	Mellow	Mellow distortion. Try with the front pickup
	27	Cheap	Cheap	A cheap and cheerful distortion sound
	28	Lead	Lead	A lead solo distortion sound
	29	Bottom	Bottom	Somewhat bass-heavy driving sound
	30	Strong	Strong	A powerful driving sound

Table 6.8: TASCAM effects

Effect type	Preset No.	Title	LCD indication	Comments
	31	Trebly	Trebly	Driving sound with a lot of treble
	32	Solo	Solo	"Humbucker" solo sound
	33	Crunch	Crunch	"Crunch"
	34	Fat Drive	Fat Drive	A thick, fat sound
Compressor				
	35	Comp	Comp	Basic compressor sound
	36	Fast Attack	Fast Attack	A compressor with a fast attack
	37	Slow Attack	Slow Attack	A compressor with a slow attack
	38	Short Release	Short Release	Quick-release compressor
	39	Long Release	Long Release	Slow release compressor
	40	Vocal Comp 1	Vocal Comp 1	Use this compressor with vocals
	41	Vocal Comp 2	Vocal Comp 2	Maybe a little more natural-sounding than Vocal 1
	42	Inst	Inst	This setting is good with a rhythm box or drum machine
Exciter				
	43	Exciter	Exciter	Helps the definition of musical sounds
	44	Edge	Edge	The treble is attenuated in this setting
	45	Vocal EX	Vocal EX	Suitable for use with vocals
	46	Rhythm G	Rhythm G	Use this setting with rhythm guitars
	47	Bass EX	Bass EX	Use with bass guitars and instruments
De-esser				
	48	De-esser	De-esser	Use this to reduce sibilance
Phaser				
	49	Phaser	Phaser	Basic phase sound
	50	G Phaser 1	G Phaser 1	Use this phase with guitars
	51	G Phaser 2	G Phaser 2	Use this with backing guitars
	52	G Phaser 3	G Phaser 3	Use the resonance in this sound with guitars
	53	Bass Phaser 1	Bass Phaser 1	Use with fast passages from bass guitar
	54	Bass Phaser 2	Bass Phaser 2	Slower bass phaser
	55	Rhythm Phaser 1	Rhythm Phaser 1	A phase for cutting rhythm
	56	Rhythm Phaser 2	Rhythm Phaser 2	Fast rhythm phaser
	57	Vocal Phaser 1	Vocal Phaser 1	A rather "loose" phase sound
	58	Vocal Phaser 2	Vocal Phaser 2	"Inspirational" vocal phasing
	59	Drum Phaser	Drum Phaser	Use this with drums to create space
	60	Fusion Phaser	Fusion Phaser	Sounds good with fusion styles
	61	Vibrato Phaser	Vibrato Phaser	Phase used as vibrato
	62	Wah Phaser	Wah Phaser	Phaser used like a wah-wah pedal

Table 6.8: TASCAM effects

Effect type	Preset No.	Title	LCD indication	Comments
Delay				
Stereo	**63**	Delay	Delay	A basic delay setting
	64	Long Echo	Long Echo	Long echo setting
	65	Stereo Echo	Stereo Echo	A long stereo echo sound
	66	Bath	Bath	Singing in the bath?
	67	Doubling	Doubling	A doubling echo setting
	68	One Time	One Time	One-shot echo
	69	Rhythm Echo	Rhythm Echo	A good echo sound to use with drums
Ping-Pong	**70**	Oasis	Oasis	A lazy, casual echo sound
	71	Short Echo	Short Echo	Short repeat echo
	72	Loose	Loose	Slightly looser echo setting
	73	Vocal Echo 1	Vocal Echo 1	A "karaoke"-type echo
	74	Vocal Echo 2	Vocal Echo 2	Use this setting with vocals for a short repeat
Multi-tap	**75**	Cross Feedback	Cross Feedback	Left and right echoes cross over
	76	Cool	Cool	Almost a vibrato setting
	77	100bpm 1	100bpm 1	Use this at 100bpm
	78	100bpm 2	100bpm 2	Use this at 100bpm
	79	120bpm 1	120bpm 1	Use this at 120bpm
	80	120bpm 2	120bpm 2	Use this at 120bpm
	81	150bpm 1	150bpm 1	Use this at 150bpm
	82	150bpm 2	150bpm 2	Use this at 150bpm
Chorus				
	83	Chorus	Chorus	The basic chorus sound
	84	Backing Chorus	Backing Chorus	An "arpeggio" type of chorus setting
	85	Fast Chorus	Fast Chorus	A fast chorus setting
	86	Slow Chorus	Slow Chorus	A slower, lazier chorus
	87	Soft Chorus	Soft Chorus	Soft and gentle
	88	Deep Chorus	Deep Chorus	A deep chorus sound
	89	Ensemble 1	Ensemble 1	A thick, "multiple" chorus sound
	90	Ensemble 2	Ensemble 2	A chorus sound with a strong tremolo.
	91	Ensemble 3	Ensemble 3	Another kind of ensemble sound
	92	Clean Chorus 1	Clean Chorus 1	A light chorus sound
	93	Clean Chorus 2	Clean Chorus 2	Use this clean sound with vocals
	94	Clean Chorus 3	Clean Chorus 3	A vibrato-type chorus effect
	95	Chorus Flange 1	Chorus Flange 1	A feedback chorus setting, almost like a flanger
	96	Chorus Flange 2	Chorus Flange 2	A flanger-like setting for use with bass

Table 6.8: TASCAM effects

Effect type	Preset No.	Title	LCD indication	Comments
	97	Chorus Flange 3	Chorus Flange 3	Strong modulation setting
Pitch changer				
	98	Pitch shifter	Pitch shifter	Octave doubler
	99	Ensemble 1	Ensemble 1	A repeat setting to give an ensemble effect
	100	Ensemble 2	Ensemble 2	A short repeat provides a "coming and going" effect
	101	Ensemble 3	Ensemble 3	Useful when used with chorus
	102	3rd Harmony 1	3rd Harmony 1	Thirds-type harmony
	103	3rd Harmony 2	3rd Harmony 2	Lower thirds harmony
	104	Octave 1	Octave 1	Octave up pitch shift
	105	Octave 2	Octave 2	Octave down pitch shift
	106	5th Harmony 1	5th Harmony 1	Fifth up harmony
	107	5th Harmony 2	5th Harmony 2	Fifth down harmony
	108	Pitch Chorus 1	Pitch Chorus 1	Detune and echo gives a chorus effect
	109	Pitch Chorus 2	Pitch Chorus 2	Strong pitch change effect provides a chorus-like feel
	110	12 Strings	12 Strings	12-string guitar emulation
	111	Glow up	Glow up	Pitch shift and feedback for an interesting effect
	112	Mystery	Mystery	A sound of mystery
Flanger				
	113	Flanger	Flanger	A "sparkling" flanger setting
	114	G Flanger 1	G Flanger 1	Use this flanger setting with guitars
	115	G Flanger 2	G Flanger 2	A fast flange setting
	116	G Flanger 3	G Flanger 3	A looser flange setting
	117	Bass Flanger 1	Bass Flanger 1	Use this flanger with bass instruments
	118	Bass Flanger 2	Bass Flanger 2	Another sound for use with bass instruments
	119	Vocal Flanger	Vocal Flanger	This can be used to add life to vocals
	120	Funny	Funny	Creatures from outer space?
	121	Jet Flanger 1	Jet Flanger 1	Resonance to simulate a jet takeoff
	122	Jet Flanger 2	Jet Flanger 2	A spacious "jet" sound
	123	Sweet Flanger	Sweet Flanger	A smoother, sweet flange setting
	124	Flanger Echo	Flanger Echo	Repeat and flange together
	125	Tremolo Flange	Tremolo Flange	Flanger used as a tremolo
	126	Deep Flanger	Deep Flanger	A deep flanger setting
	127	Metallic Tone	Metallic Tone	A flanger setting giving a metallic tone

Table 6.8: TASCAM effects

As well as the MIDI ports, the DM-3200 can pass MIDI to and from a PC connected using the USB connection (as well as through a FireWire connection if an optional FireWire interface card is fitted). This section explains some of the ways in which the card is used.

MIDI port switching and filtering

Press the **MIDI** key and navigate to the SETUP page to bring up the following screen:

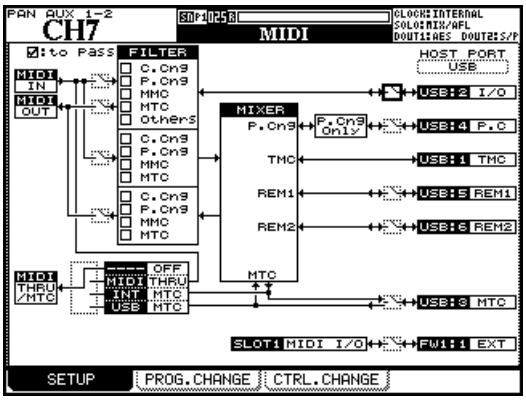


Figure 7.1: MIDI setup

The three boxes to the left of the screen (MIDI IN, MIDI OUT and MIDI THRU/MTC) refer to the three physical MIDI connectors on the rear panel.

The HOST PORT boxes on the right of the screen refer to the different virtual MIDI ports carried between the DM-3200 and the host PC, either through the built-in USB, or through the optional FireWire card.

- **Use the** HOST PORT **parameter to select the virtual MIDI port carrier: either** USB **or** FW1 **(if optional FireWire cards have been fitted).**

The different virtual MIDI ports are dedicated to different tasks. Working from the top of the screen (the numbers in parentheses refer to the port numbers shown in a DAW application, etc.:

- I/O (2) handles MIDI messages, bypassing the mixer section, and acting through the DM-3200's physical MIDI ports.
- P.C. (4) handles Program Change messages only.
- TMC (1) is reserved for communication with the PC software (TASCAM Mixer Companion)
- REM1(5) and REM2 (6) are bi-directional ports that may be used for remote MIDI control of the DM-3200 or the DM-3200 to control another device.
- MTC (3) is a dedicated MIDI Time Code port.
- **Enable and disable these ports, along with the physical MIDI ports, by using the cursor keys and ENTER key to open and close the on-screen switches. Note that the** TMC **connection (1) cannot be turned off.**

The FILTER boxes allow the following MIDI messages to be passed (checked) or blocked (unchecked): Control change (C.Cng), Program change (P.Cng), MIDI Machine Control (MMC), MIDI Timecode (MTC), and other messages (Others).

The first part of the filter block refers to those messages received at the physical **MIDI IN** and transmitted to the virtual I/O port, as well as those MIDI messages that go the other way (from the I/O port to the physical **MIDI OUT**). Note that both the physical and virtual switches must be set here for data to go between these ports.

The next part of the block governs the filtering between the physical **MIDI IN** port and the mixer.

The final part of the filter block governs the filtering of the MIDI data sent out by the mixer from the physical **MIDI OUT** port.

Below the filter is the 4-way switch (use the wheel and **ENTER** key to set this up) allowing switching between:

- OFF — no MIDI data is sent from the **THRU** port
- THRU — the data received at the physical **MIDI IN** is echoed through the THRU port
- INT MTC — the internal MIDI timecode generator's output is sent through the **THRU** port
- USB MTC — the MIDI timecode received at the USB MTC port is echoed at the **THRU** port

Finally at the bottom, the slot FireWire card MIDI connection can be switched on and off.

Program Change messages and the DM-3200

The DM-3200 can receive Program Change messages to recall snapshot settings, or settings from either of the two effect libraries.

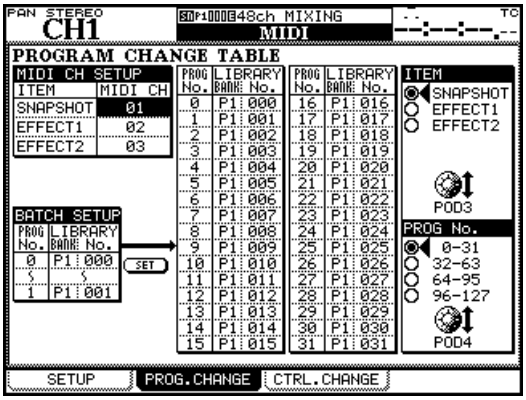


Figure 7.2: MIDI Program Change screen

1. **Use the MIDI key to bring up the** PROG. CHANGE **screen ("MIDI Program Change screen" on page 92).**
2. **Use the POD 3 encoder to choose which library item to select** (SNAPSHOT**, or** EFFECT2**).**
3. **The screen shows 32 programs at a time. Use the POD 4 encoder to select which group of 32 programs will be shown.**
4. **Use the cursor keys and wheel to select and set incoming program change numbers** (PROG No.)**, — 0 through** 127**; the bank** (LIBRARY BANK) **—** P1 **for preset,** B1 **through** B4 **for the user CF card banks; and the number in the library** (LIBRARY No.) **000 through 127.**

NOTE

The effect libraries have two preset banks - these are labeled as P1 *and* P2 *here.*

Setting the MIDI channels To allow the program changes to be made independently for the three types of library recall, select different MIDI channels for the snapshot and effect libraries using the MIDI CH SETUP block at the top left of the screen.

Batch setup In order to assign a group of contiguous program change values to a contiguous group of library entries in the same bank, use the BATCH SET UP block at the lower left of the screen.

- **Select the starting and ending incoming Program Change numbers** (PROG No.)**. You must press ENTER to confirm these values.**
- **Select the library bank** (P1 **or** B1 **through** B4) **for the batch process.**
- **Select the starting Library slot number** (LIBRARY No.)**. The highest library slot number is automatically determined from the Program Change values set earlier.**
- **When all values have been set, move the cursor to the on-screen** SET **button and press ENTER.**

NOTE

Program Change messages are sent and received through USB MIDI port 4. Enable this port in the MIDI SETUP *screen ("MIDI port switching and filtering" on page 91) or the MIDI input and filter switches for the physical MIDI ports.*

MIDI Implementation Charts

These are available as downloads from the TASCAM Web site.

The DM-3200 is capable of acting as a remote control unit for a wide variety of external devices. The exact functionality of the machine control depends, of course, on the device to be controlled.

The device control is carried out through the MIDI connections, including the USB MIDI ports (for MMC), or the serial port via P2 protocol (**RS-422**).

Different devices can be selected for simultaneous control by the DM-3200, with different devices being controlled in different ways. For instance, it is possible to select one device to have its transport functions controlled by the DM-3200, while the DM-3200 controls the track arming functions of another device.

NOTE

In this section, the term "controller" is used to refer to a part of the DM-3200 software controlling an external device, rather than a hardware feature of the device or the DM-3200.

Selecting devices for transport control

The **REMOTE** key is used to set up external devices for transport and machine control.

1 **With the ALT indicator lit, press the REMOTE key.**

2 **Use the POD 2 key to bring up the machine control screen** (MACHINE CTRL)**:**

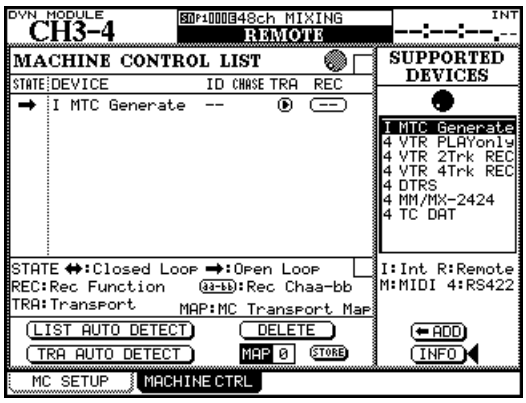


Figure 8.1: Adding external devices for control by the DM-3200

3 **With the cursor pointing to either the** <-ADD **or** INFO **buttons at the right of the display, use the dial to scroll through the list of devices on the right of the screen that may be controlled by the DM-3200** (SUPPORTED DEVICES)**.**

4 **When a device to be controlled by the DM-3200 is selected in the list, move the cursor to the** <-ADD **button, and press ENTER. The device will be added to the list.**

To obtain more information regarding a particular item in the list of devices which may be controlled by the DM-3200, highlight the item, move the cursor to the INFO button, and press **ENTER**. A popup screen provides information regarding the list item.

At the bottom of the list is a key to the method used for controlling each item in the list:

Display	Meaning
I	Internal devices
M	MIDI Machine Control
4	P2 (RS-422)

Table 8.2: Control methods

The current list of devices (at the time of writing) is:

Device	Screen display	Control type
MIDI Timecode generator	MTC Generate	I
DTRS recorder	DTRS	4
VTR (playback only)	VTR PLAYonly	4
2-track VTR with record support	VTR 2Trk REC	4
4-track VTR with record support	VTR 4Trk REC	4
MMR-8 or MMP-16 TASCAM HD recorder	MM/MX-2424	4
DAT recorder with timecode track	TC DAT	4

Table 8.3: Supported transport machine control devices

Other devices may be added to the list of supported devices in the future. If the list does not contain the name of a device that you wish to control, please contact your local TASCAM Web site regarding the availability of a software upgrade which contains the control capability for your device.

Up to 16 devices may be added to the Machine Control List. If more devices are connected and added to the list than can be shown on screen, arrow marks appear at the top and bottom of the list.

When an entry in the Machine Control List is highlighted (that is, the cursor is on the left of the screen), the dial is used to scroll through the list, including those items which may not be visible on the screen.

Deleting devices from the list

If a device is added in error to the Machine Control List (or is no longer required), move the cursor to the on-screen DELETE button, use the wheel to select the device and press **ENTER**. The item in the list will be deleted.

This process can be repeated to clear the list.

Auto-detection of devices

In addition to the manual addition of controlled devices, there are two auto-detect buttons. One is used is used for detecting all devices attached to the DM-3200 (LIST AUTO DETECT) and the other is used for transport mapping (see "Transport mapping memories" on page 95 below).

Move the cursor to the on-screen LIST AUTO DETECT button and press **ENTER** to scan the control ports and report on the detected devices, adding the controllers to the Machine Control list (see "Transport mapping memories" on page 95).

NOTE

Because not every device that may be controlled by the DM-3200 is capable of reporting its presence accurately, some devices will not appear on the list, and must be added to the list manually.

When attempting to identify a MIDI device, the DM-3200 first sends out an MMC Read Signature command. It adds a generic "closed loop" device for every device ID that responds to this command.

It also sends out a MIDI Device Inquiry Message. If a remote device replies to this message, and an appropriate controller is available, this controller replaces the generic MMC closed-loop controller.

NOTE

The current version of the DM-3200 software does not support MIDI Machine Control. The paragraphs above refer to later versions.

After power has been applied, it may take between one and two minutes for the remote devices to be recognized. Even if they have been added to the memorized Machine Control list previously, it may not be possible to control them immediately the system is powered up.

Selecting the control type for the devices

The Machine Control list is composed of a number of columns. These are explained below:

STATE An icon shows the state of the controlled device. A one-way arrow represents an open-loop device (that is, commands are sent from the DM-3200 to the device, but no information is transmitted back from the device to the DM-3200 along the same channel—information is transmitted from the other device through a different channel, such as timecode or MIDI).

A double-ended arrow represents a closed loop, where information flows both ways between the remote device and the DM-3200 along the same channel.

A cross indicates that the device is not being controlled by the DM-3200.

Two dashes (--) show that the type of control is not relevant here (for instance, the internal MIDI timecode generator).

DEVICE The name of the device being controlled, together with its control type. These list items cannot be changed or edited.

ID In the case of DTRS units, it refers to the unit ID, and cannot be edited. In the case of MMC units, it refers to the MMC ID (up to three decimal digits) of the unit. This list item cannot be changed or edited.

CHASE This applies to DTRS units, and allows the CHASE mode of the selected unit to be turned on or off. Any unit which can have its chase mode controlled by the DM-3200 has this item represented by a square box. Units whose CHASE mode cannot be remotely controlled have this item represented by two dashes (--). Use the cursor keys to navigate to the list item, and the **ENTER** key to toggle between on (a check mark is shown in the box) and off (the box is empty).

TRA This parameter allows the transport controls of the DM-3200 to control the transport of the selected device (TRA).

Only one device at a time can be selected for transport control, as shown by the circled ▪ symbol. If a device has been selected for transport control, and it is required to control another device, the first device selected for external control will automatically be deselected from transport control.

If the device is not active when an attempt is made to assign the transport control here, a popup message appears and the assignment is not made.

An exception to the above is when the internal timecode generator is selected for control—in this case, the automation sync source may be set to the internal generator using a popup message.

Some machines may unthread the tape if the **STOP** key is pressed while the transport is stopped.

NOTE

The exact way in which the transport controls work with the external device depends on the capabilities of the device. For instance, the notion of "record" is not very meaningful when applied to the internal timecode generator.

If you require further information on the control features of a specific device that are not detailed here, please contact your TASCAM support personnel, who should be able to supply you with further information.

REC This allows the selection of the **REC** keys (the **REC** key above the stereo fader + the channel **SEL** keys) on the DM-3200 which arm the tracks on the remote external device.

Use the dial to choose between 1-8, 9-16, 17-24, 25-32, 33-40 and 41-48 (8 tracks), 1-16, 17-32 and 33-48 (16 tracks), 1-24, 9-32, 17-40 and 25-48 (24 tracks).

Use the **ENTER** key to confirm the choice.

An appropriate pop-up error message is displayed if an attempt is made to assign two overlapping groups of **REC** controllers. Use the **ENTER** key to accept the new assignment, or the cursor keys to dismiss this message and return to the previous assignment.

NOTE

The module **REC** *keys only have effect on channels 1 through 48.*

All safe The **ALL SAFE** key above the **STEREO** fader can be used to turn off the track arming for all tracks for all assigned **REC** keys. While **ALL SAFE** is active, the **REC** keys are disabled, until **ALL SAFE** is turned off again. The recording status that was active before the **ALL SAFE** was turned on is restored when **ALL SAFE** is turned off again.

Transport mapping memories

So that commonly-used machine control settings can be stored and recalled easily, the DM-3200 provides 10 memories of machine control transport mappings (numbered from 0 through 9).

Each of these may contain a device (only one) which may be controlled by the transport control facilities of the DM-3200.

Each of these mappings also includes the SCR setting and the TRA setting.

As an example of the practical use of this, take the example of three tape units connected to a VTR, chasing to timecode supplied by the VTR. Usually, the transport keys will control the VTR, and the **REC** keys will control the three tape units. The tape units will be locked and chasing the VTR. Sometimes, though, it will be necessary to control the tape units directly. Recording functions are still assigned to the tape units.

The mappings are automatically assigned when the TRA AUTO DETECT button is "pressed" after the units have been added to the list.

A pop-up window appears asking if the autodetect process should take place (as it will delete all previous mappings).

Press **ENTER** to continue with the autodetection, or any of the cursor keys to cancel the process.

When the scan is complete, a pop-up screen appears, showing the detected devices and their assignments to the control maps.

Any selected devices that may be controlled are detected and a new map is created for each such device.

A message is shown if there are more devices connected than can be added to the list (that is, more than 10).

If there are IDs associated with the devices, these are also shown.

To use a transport mapping

Of course, at least one transport mapping must exist before this operation can be carried out.

1. **Press and hold down the MACHINE SEL (F7) key.**
2. **Press the numeric key corresponding to the map you want to use (0 through 9).**

The DM-3200's transport control keys will now control the device selected in that map and the other mapping features will also be enabled. A popup shows the currently-recalled memory (or a message if no mapping has been recalled).

The MAP field at the lower part of the screen shows the currently-loaded map.

Viewing the transport mappings

To view the transport mappings (that is, the list of the devices that will be controlled in each mapping):

1. **Press and hold SHIFT and press the LOCATE LIST (F8) key. The device controlled in each map, together with its ID, is shown.**
2. **Press the ENTER key to continue operations.**

Editing a mapping

When a mapping has been made, parameters other than the transport control may be edited (for instance, the use of the **REC** keys).

To make these changes a permanent part of the currently-loaded map:

1. **Move the cursor to the number by the MAP field.**
2. **Use the dial to select the mapping memory into which the current mapping will be stored. Press ENTER.**
3. **Press ENTER (the on-screen STORE button).**

Machine control setup

With the **ALT** indicator lit, press the **REMOTE** key. Use the first soft key to bring up this screen:

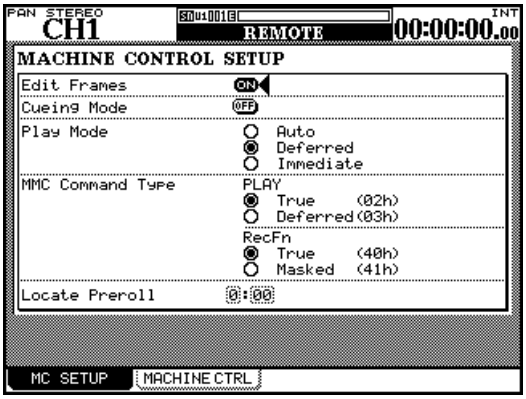


Figure 8.4: Machine control setup parameters

This allows the setting of various machine control parameters.

Edit Frames

When this is set on, location memories, etc. are edited to frame accuracy. When it is set to off, location settings are made to second accuracy.

Cueing mode

When this is on (checked), the **FF** and **REW** keys act as shuttle keys. Press the key in play mode to enter fast cueing shuttle mode, and release it to re-enter play mode.

In non-play mode, these keys function normally, even with this option selected.

Play Mode

This function determines the way in which the **PLAY** key works in conjunction with the location facilities. There are three settings: Auto, Deferred and Immediate.

AUTO The **PLAY** indicator flashes as the unit is locating to a location point. When the location point is reached, playback starts automatically. However, if the **PLAY** key is pressed before the location point is reached, the unit stops locating and starts playing.

DEFERRED The unit stops after location is completed. However, if the **PLAY** key is pressed while the unit is locating, the **PLAY** indicator flashes, and playback starts when the location point is reached.

NOTE

Because an open MMC connection cannot determine when the locate point has been reached, deferred play is not possible for a machine controlled in this way.

IMMEDIATE The unit stops after location is completed. If the **PLAY** key is pressed while the unit is locating, the machine goes straight into play mode, without locating.

Play Command Type

Use this option to make the play commands from the DM-3200's MIDI Machine Control compatible with the unit being controlled.

There are two options: True (02h) and Deferred (03h). Consult the documentation of your other equipment for details of compatibility.

Record Command Type

Use this option to make the record commands from the DM-3200's MIDI Machine Control compatible with the unit being controlled.

There are two options: True (40h) and Masked (41h). Consult the documentation of your other equipment for details of compatibility.

Locate Preroll

Move the cursor to the numeric field, which shows the pre-roll time when a location point is reached (displayed in minutes and seconds). For example, if this field shows 0:10, if a location operation is carried out to a location memory of 00:20:32, the actual point located to is 00:20:22.

Note that this is used only in the case of Direct location ("Location to a location memory" on page 99), and not in the case of manual location operations ("Manual location" on page 100), which locates to the value entered, irrespective of the pre-roll time set here.

Use the dial to set the pre-roll value and confirm the setting of this value with the **ENTER** key.

Location memories

The DM-3200 allows the storage and recall of up to ten location memories, allowing easy location of the controlled devices to predetermined cue points.

Selecting the location point display

As explained in "LOCATE DISPLAY mode" on page 33, the LOCATE DISPLAY MODE setting in the OPTION SETUP screen is used to determine whether the LED time counter shows the location memories as they are entered, edited and recalled, or whether they are shown as "popup" panels on the LCD display screen.

When this section mentions "the display" showing location memory values, this refers to the display that has been selected in this option.

NOTE

Depending on the settings for frame display ("Edit Frames" on page 97), the frames value may or may not be shown on the display when location memories are being edited, etc.

Storing a location memory "on the fly"

This procedure allows you to set a location memory, regardless of whether timecode is currently being received or not. If timecode is not currently being received, the value of the location memory is the last received value as shown on the time counter on the display.

The value on the time counter, regardless of source, is stored as the location memory. This may be timecode or MTC.

1. **Press the MEMO key. The indicator starts to flash.**
2. **Press any of the numeric keys, corresponding to the ten location memories available.**
3. **The MEMO indicator stops flashing and the currently-displayed timecode value is stored in the location memory corresponding to the numeric key which was pressed.**

Manually entering and editing a location memory

The procedure below can be used for editing existing location memories or for adding new ones:

1. **Press the EDIT key. The indicator starts to flash.**
2. **Press one of the number keys to select the location memory which will store the value. The EDIT indicator lights steadily.**
3. **Enter the timecode value using the numeric keypad. The display shows the value, "filling up" from the right digit towards the left.**

   Or, if the EDIT key is pressed again after the location memory number has been pressed, the indicator starts to flash again, allowing the checking and editing of another location memory.
4. **Press the ENTER key when the timecode value for the location memory has been entered.**
5. **Press EDIT again once to edit another location memory, or press EDIT twice to exit the location memory editing mode.**

   If the CLR key is pressed before the ENTER key, a location memory entry which has been made in error is cleared. Pressing ENTER stores the cleared memory.

It is possible to switch between the capture, edit and location procedures at any time.

Location to a location memory

When the location memories have been entered, they are recalled in the following way:

1. **Press the DIRECT key. The indicator lights.**
2. **Press any one of the numeric keys, corresponding to the ten location memories.**
3. **The controlled device locates to the memory stored in the location memory.**

   What happens next depends on the PLAY MODE setting (see "Play Mode" on page 97).

NOTE

If a pre-roll time has been set ("Locate Preroll" on page 98), the controlled device will locate to the location memory point, minus the value set as the preroll time.

Viewing a list of location memories

To view a popup list of all the location memories which have been stored:

- **Press the LOCATE LIST key.**
- **The location memory source (timecode or MTC) is shown, along with the value of each location memory. The DIRECT indicator also lights.**
- **Press a number key (from 0 through 9) to locate to a location point on the list while the list is showing.**

Manual location

It is also possible to enter a location point manually, (from a cue list, for instance) and locate straight to it.

1. **Press the MANUAL key so that the indicator lights.**
2. **Use the number keys to enter a number in** hh:mm:ss **(and optionally frames) format.**
3. **When the ENTER key is pressed, the controlled device starts to locate to the location point just entered.**

This location point can be stored by pressing the **MEMO** key so that the indicator flashes, followed by pressing the **MANUAL** key again.

To locate to this point again after storing the location point, press the **MANUAL** key, followed by the **ENTER** key.

Note that the pre-roll time ("Locate Preroll" on page 98) does not apply here.

Repeat play

Location memories 8 and 9 (accessed with the **8** and **9** keys) are used as the start and end points of a repeat loop that can be played by pressing the **REPEAT** key in the **MACHINE CONTROL** section.

While the repeat loop is in progress, the indicator flashes while the playback position is outside the loop points, and lights steadily while it is inside them.

The repeat is always between points 8 and 9, regardless of their order. These points must be more than 5 seconds apart.

Auto punch operations

For units supporting auto punch, the three keys: **RHSL**, **IN/OUT** and **CLEAR** are used to set punch points and perform punch operations.

It is a good idea to start this process with at least one track armed for recording:

1 **Press RHSL so that the indicator lights. Play back the source, and press the RECORD key at the punch-in point (it will flash). Press PLAY at the punch-out point.**

   The RHSL indicator should now light steadily.

2 **Press the RHSL key to enable rehearsal mode. Press PLAY, and playback will start from the pre-roll position. At the in point, the RECORD key flashes, and goes off at the OUT point.**

   Repeat the rehearsal until you are happy, and then press the IN/OUT key. The indicator flashes. Pressing PLAY starts playback at the pre-roll point. Playback continues until the in point, when the unit drops into record (RECORD lights) until the out point, when the DM-3200 punches out. Repeat until you're happy with the take.

3 **To review the punch recording, press the IN/OUT key so that the indicator lights steadily.**

- **Press CLEAR from rehearsal mode to return to normal operation and clear the punch points.**
- **Press CLEAR from punch or review mode to clear the mode and the punch points.**

When punch operations are taking place, the punch-in and punch-out points may be viewed and edited in location memories **4** and **5** respectively. When the **CLEAR** key is pressed to finish punch operations, the original location memories (if any) are restored.

ALL INPUT and AUTO MON

The **F5** acts as an **ALL INPUT** and F6 as an **AUTO MON** key for DTRS devices controlled through the P2 protocol. A popup appears (if the remote device supports this function) to show the function is enabled.

Devices controlled using the P2 protocol (including DTRS units controlled over P2) can accept these commands, but some cannot, depending on the manufacturer's implementation of the protocol.

9 – Specifications

This section provides technical and reference information about the DM-3200, together with a list of messages you may see on the display of the DM-3200 and instructions about how to respond to them.

Analog audio I/O

All specifications are given with the factory reference level of –16dBFS.

MIC inputs (channels 1 through 16)	Balanced XLR-type female connectors[a] Adjustable input level: (–60 dBu (TRIM max) to –4dBu (0dB pad)) (–40 dBu (TRIM max) to +16 dBu (–20dB pad)) Input impedance 2.2kΩ
PHANTOM (+48V)	+48V phantom power. Switchable in blocks of 4 channels (1–4, 5–8, 9–12, 13–16)
LINE IN (BAL) inputs (channels 1 through 16)	Balanced 1/4″ jacks[b] Adjustable input level (–44dBu (TRIM max) to +12dBu (TRIM min)) Input impedance 10kΩ
INSERT connections (channels 1 through 16)od	1/4″ TRS jacks[c] Send: nominal output level –2dBu, maximum output level +14dBu, impedance 100Ω Return: nominal input level –2dBu, headroom 16dB, impedance 10kΩ
ASSIGNABLE RETURNS (BAL) (1 through 4)	Balanced 1/4″ jacks Nominal input level: +4dBu Headroom: 16dB Input impedance: 5kΩ
ASSIGNABLE SENDS (1 through 4)	Pseudo-balanced 1/4″ jacks Nominal output level: –2dBu Maximum output level: +14dBu Output impedance: 100Ω
2 TR IN (L/R)	2 x RCA pin jacks Nominal input level –10dBV Headroom: 16dB Input impedance: 10kΩ
STEREO OUTPUT (L/R)	Balanced XLR-type male connectors Nominal output level: +4dBu Maximum output level: +20dBu Output impedance: 100Ω
MONITOR OUTPUTS (CR (BAL))	Pseudo-balanced 1/4″ jacks Nominal output level: +4dBu Maximum output level: +20dBu Output impedance: 100Ω
MONITOR OUTPUTS (STUDIO)	RCA pin jacks Nominal output level –10dBV Maximum output level: +6 dBV Output impedance: 100Ω
PHONES	2 x 1/4″ stereo jacks 50 mW + 50 mW total[d] 32Ω

a. all XLR-type connectors are wired 1=ground, 2=”hot”, 3=”cold”
b. all balanced 1/4” jacks are wired sleeve=ground, ring=cold, tip=hot
c. all TRS 1/4” jacks are wired sleeve=ground, ring=return, tip=send
d. Maximum with both **PHONES** jacks driven at maximum

Digital audio I/O

DIGITAL INPUTS (**1**, **2**)	2 x XLR-type female connectors (input impedance 110Ω) *or* 2 x RCA pin jacks (input impedance 75Ω) (selectable) AES3-1992 or IEC60958 data format (automatically detected) 24-bit word length Switchable sampling frequency conversion available
DIGITAL OUTPUTS (**1**, **2**)	2 x XLR-type male connectors (output impedance 110Ω) 2 x RCA pin jacks (output impedance 75Ω) AES3-1992 or IEC60958 data format (software selectable) 24-bit word length
TDIF-1(**1**, **2**, **3**)	3 x 25-pin (female) D-sub connectors (metric lock screws) Conform to TDIF-1 standard 24-bit word length
ADAT IN/OUT	2 x "Lightpipe" optical connectors Conform to ADAT OPTICAL specifications 24-bit word length
Sampling frequencies	Internal 44.1kHz/48kHz, 88.2kHz/96kHz (high sampling frequencies) External ±6.0%
Signal delay	< 1.7ms — Fs = 48kHz, LINE IN to STEREO OUTPUT < 0.85ms — Fs = 96kHz, LINE IN to STEREO OUTPUT

Miscellaneous I/O connections

WORD SYNC IN	BNC connector Switchable 75Ω termination TTL level
WORD SYNC OUT/THRU	BNC connector Switchable between through and output TTL level
MIDI IN, OUT, THRU/MTC OUT	3 x 5-pin DIN connectors—conform to MIDI specifications
USB	USB 1.1 'B' type connector (12Mbps)
TIME CODE IN	RCA pin jack Conforms to SMPTE specifications
FOOT SW	1/4" mono jack
TO METER	25-pin female D-sub connector (non-metric lock screws) For use with the optional MU-1000
RS-422 (for Sony 9-pin)	9-pin female D-sub connector (non-metric lock screws) wired to RS-422 standards
GPI (for Machine start)	9-pin female D-sub connector (non-metric lock screws) wired for GPI control Pin 1=GP11, Pin 2=GPI2, Pin 3=GPI3, Pin 4=GPI4, Pin 5=GND, Pin 6=GPI5, Pin 7=GPI6, Pin 8=GPI7, Pin 9=GP18

Equalization

EQ switch	On/Off	
HIGH filter	Gain:	±18dB, 0.5dB resolution
	Frequency:	31Hz to 19kHz
	Q:	0.27 to 8.65
	Type:	Hi-shelving, Peak, LPF
HI MID filter	Gain:	±18dB, 0.5dB resolution
	Frequency:	31Hz to 19kHz
	Q:	0.27 to 8.65
	Type:	Peak, Notch
LO MID filter	Gain:	±18dB, 0.5dB resolution
	Frequency:	31Hz to 19kHz
	Q:	0.27 to 8.65
	Type:	Peak, Notch
LOW filter	Gain:	±18dB, 0.5dB resolution
	Frequency:	31Hz to 19kHz
	Q:	0.27 to 8.65
	Type	Low-shelving, Peak, HPF

All filters are fitted with “gain flat” switches

System performance

THD (maximum level, 1kHz, TRIM: minimum)	20Hz – 22kHz LINE IN to INSERT SEND	< 0.005%
	LINE IN to STEREO OUTPUT	< 0.008%
Frequency response (nominal level, 1kHz, TRIM: minimum)	0.5dB/-1.0dB MIC/LINE to INSERT SEND	20Hz – 20kHz (44.1/48kHz)
	0.5dB/-1.5dB MIC/LINE to INSERT SEND	20Hz – 40kHz (88.2/96kHz)
	0.5dB/-1.0dB MIC/LINE to STEREO OUTPUT[a]	20Hz – 20kHz (44.1/48kHz)
	0.5dB/-1.5dB MIC/LINE to STEREO OUTPUT[a]	20Hz – 40kHz (88.2/96kHz)
Noise level (20Hz – 22kHz, TRIM: max, 150Ω)	MIC in (PAD off) to INSERT SEND (A weight)	< –128dBu (EIN)
	STEREO OUT (Input no assign)	< –83dBu
	ASSIGNABLE RETURN to ASSIGNABLE SEND	< –85dBu
	2TR IN to CR OUTPUT (CR: max, 0dB)	< –78dBu
	2TR IN to STUDIO OUT (STUDIO OUT 0dB)	< –88dBu
Crosstalk @ 1kHz	STEREO/BUSS/AUX OUTPUTS	> 90dB
	MONITOR OUTPUTS	> 90dB

a. **MIC/LINE** to channel module to **STEREO OUTPUT**, channel and stereo faders at 0dB, pan hard left or hard right

Physical characteristics

Displays	Backlit 320 x 240 LCD with contrast control 2 x 12-segment LED meters
Faders	17 x 100mm stroke, motor-driven touch-sensitive faders
Maximum overall dimensions (w x d x h) including rest	700 x 824 x 230 (mm) 27.6 x 32.4 x 9.1 (in)
Weight	24kg (52.8lbs)
Voltage requirements	120VAC, 60Hz 230VAC, 50Hz 240VAC, 50Hz
Power consumption	65W
Supplied accessories	Power cord, *Quick Reference* guide, 32MB CF memory card, USB cable, CD-ROM, warranty card

Dimensional drawing

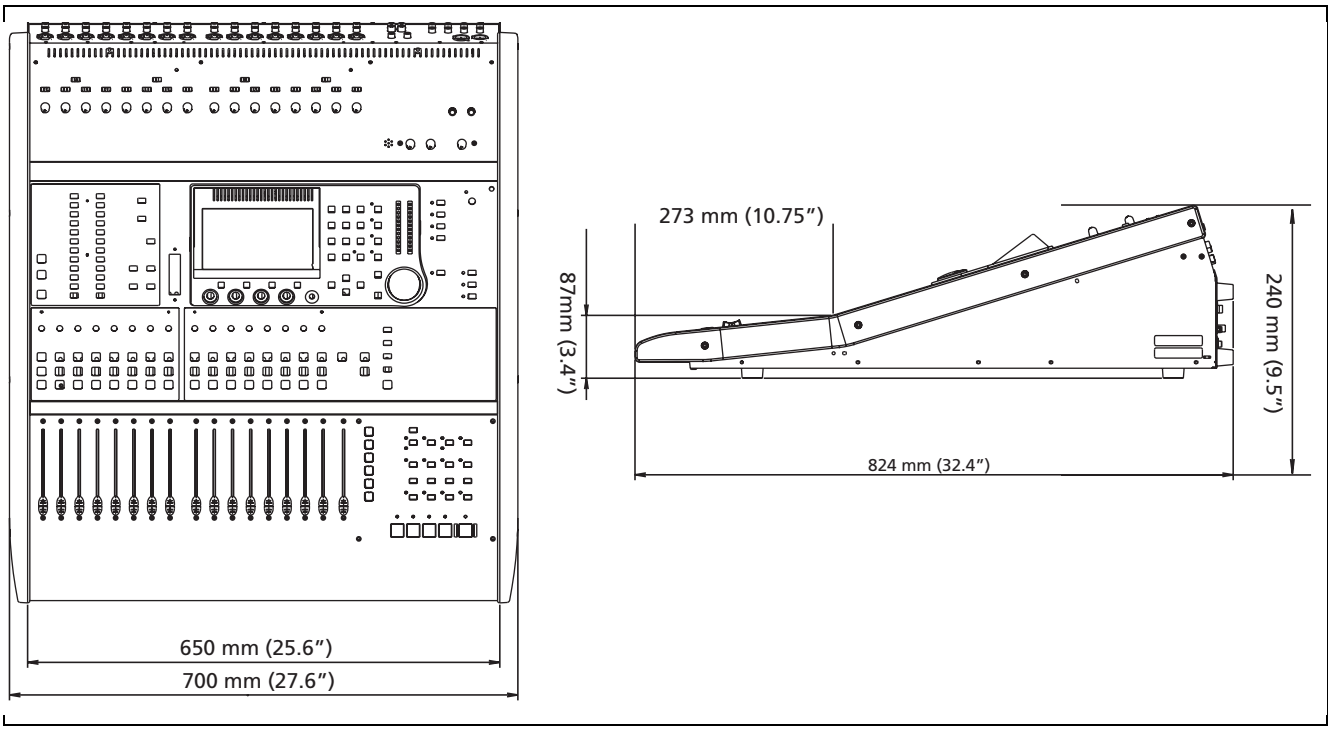


Figure 9.1: Dimensional drawing

Messages and troubleshooting

This provides an alphabetical list of the messages that you may see on the DM-3200, which provide information on the operation that you are performing.

Not all of these messages are error messages.

"Information" messages, i.e. those which pop up briefly and provide information about a change in status, etc., are marked with a ●.

"Confirm" messages, where a response may be necessary (usually confirm with the **ENTER** key or cancel with the cursor keys) are marked with a ✔.

Messages demanding action other than a simple confirmation are shown with a (✖), but even these do not necessarily indicate an error.

Action	Message	Meaning
●	Already assigned.	The RECORD key has already been assigned to a remote unit.
✖	Automation data and Current Status use different Fs. Press ENTER to continue.	The automation data uses a sampling frequency of a different value from the current sampling frequency.
✖	Automation data and Current Status have different timecode types. Press ENTER to continue.	The automation data uses a timecode of a different frame type from the current timecode.
●	Automation data was recalled.	The selected automation data has been recalled into memory.
●	Automation data was stored.	The current automation data has been stored to card.
✔	AUX 1-2 Level Set up Ch parameters? Press ENTER to confirm, or a cursor key to cancel	Used when batch copying parameters from channel to Aux 1-2 settings.

Table 9.2: Popup messages

Action	Message	Meaning
✔	AUX1 Pan/Bal Copy Aux1-2Level -> Ch Fader Level? Press ENTER to confirm, or a cursor key to cancel.	Copying the AUX 1-2 pan and balance settings to the channels.
✔	AUX1-2 Level Copy Aux 1-2Pan/Bal -> Ch Pan/Bal? Press ENTER to confirm, or a cursor key to cancel	Copying the AUX 1-2 pan and balance settings to the channels.
✔	AUX1-2 to STEREO is assigned Press ENTER to continue.	In the master buss assignment, this message appears if an attempt is made to override an existing assignment ("Routing & assignment" on page 46).
✔	AUX1-2Level Setup Ch parameters? Press ENTER to confirm, or a cursor key to cancel	Copying the Aux 1-2 parameter settings to the channels.
✔	AUX1 Pan/Bal Copy Ch Pan/Bal -> Aux1-2 Pan/Bal? Press ENTER to confirm, or a cursor key to cancel	Copying the channel pan and balance levels to the Aux 1-2 pan and balance.
✔	AUX1-2 Level Copy Ch Fader Levels -> Aux1-2 Level? Press ENTER to confirm, or a cursor key to cancel.	Copying the channel fader levels to the Aux 1-2 levels.
✖	Battery is defective Can't save system data. Please contact TASCAM service. Press ENTER to continue	The internal battery is defective, or has lost charge, so data can't be stored. Contact TASCAM service or your distributor for a replacement battery.
●	Cannot assign fader grouping layer.	An attempt has been made to make an invalid fader group ("Fader groups" on page 74)
✖	Cannot create more than 128 projects.	There is a limit of 128 projects that can be created on one CF card. Delete an unwanted project and try again.
✖	Can't Copy. Please check CF status. Press ENTER to continue.	An attempt to copy bank data on a CF card has failed. The card may be full.
✖	Can't recall COMP/EXP Library Bank a-bbb	The named compressor/expander library item cannot be recalled. The data may be missing or corrupt.
✖	Can't recall Effect Bank a-bbb	The named effect library item cannot be recalled. The data may be missing or corrupt.
✖	Can't recall Effect Preset 1-bbb	The named effect library preset cannot be recalled. The data may not exist or may be corrupt.
✖	Can't recall EQ Library Bank a-bbb	The named EQ library item cannot be recalled. The data may be missing or corrupt.
✖	Can't recall EQ Library Preset 1-bbb	The named EQ library preset cannot be recalled. The data may not exist or may be corrupt.
✖	Can't recall GATE Library Bank a-bbb	The named gate library item cannot be recalled. The data may be missing or corrupt.
✖	Can't recall GATE Library Preset a-bbb	The named gate library preset cannot be recalled. The data may not exist or may be corrupt.
✖	Can't recall COMP/EXP Library Preset 1-bbb	The named compressor/expander library preset cannot be recalled. The data may not exist or may be corrupt.
✖	Can't recall snapshot Bank a-bbb	The named snaphot cannot be recalled. The data may be missing or corrupt.

Table 9.2: Popup messages

Action	Message	Meaning
✖	Can't recall snapshot Preset 1-bbb	The named snaphot preset cannot be recalled. The data may not exist or may be corrupt.
●	Can't recall to this Module.	An attempt has been made to recall the wrong sort of data to the selected module (e.g. an effect to an Aux module)
✖	Can't Store Automation data. This file is protected.	An attempt has been made to store automation data to a file which has had protection applied. Select another file as a destination or un-protect this file.
✔	Can't turn Fs convert On Digital In1 is chosen as Master Clock Press ENTER to continue.	Frequency sampling conversion cannot be used when one of the DIGITAL INs is being used as a word sync source.
✖	CF card is not available Press ENTER to continue.	An attempt has been made to read or write to a CF card that is not inserted, etc. Reinsert the card or retry with another card.
✔	CF card is not available. Can't delete automation data on CF card. Press ENTER to continue.	Automation data stored on CF card cannot be deleted. Reinsert the card or retry with another card.
✖	CF card is not available. Can't store automation data on CF card. Press ENTER to continue.	Automation data can't be stored. Reinsert the card or retry with another card.
✔	CF card is not available. Can't store current project. Turn off power? Press ENTER to confirm, or a cursor key to cancel.	An attempt to shut down the DM-3200 has failed, because a CF card is not available. Reinsert the card or retry with another card.
✖	CF card is not available. Can't load project. Press ENTER to continue.	When power is turned on, the last project stored cannot be automatically loaded. Reinsert the card or retry with another card.
✔	CH DELAY Time Update setup? Press ENTER to confirm, or a cursor key to cancel	Shown when performing bulk setup of the channel delay time.
✔	CH Module LFE LEVEL Ch parameters setup? Press ENTER to confirm, or a cursor key to cancel	Shown when performing bulk setup of the channel LFE level.
✔	CH Module PAN/BAL Ch parameters setup? Press ENTER to confirm, or a cursor key to cancel	Shown when performing bulk setup of the channel pan and balance parameters.
●	Ch1xx EQ Library undo completed.	Shown when undoing or redoing library operations.
●	Chxx COMP/EXP Library undo completed	
●	Chxx COMP/EXP Library redo completed	Shown when undoing or redoing library operations.
●	Chxx EQ Library redo completed	
●	Chxx GATE Library redo completed	Shown when undoing or redoing library operations.
●	Chxx GATE Library undo completed	
✔	Clear all fader grouping layers? Press ENTER to confirm, or a cursor key to cancel.	Shown when all grouping layers are to be cleared.

Table 9.2: Popup messages

Action	Message	Meaning
✔	Clear this fader grouping? Press ENTER to confirm, or a cursor key to cancel.	Shown when the currently selected fader grouping is to be cleared.
✔	Clock Check Results Current Fs: 48kHz Sources Word : 44.1kHz0.0% Digi IN 1 : Out of Range Digi IN 2 : Fs convert On TDIF 1 : 44.1kHz0.0% TDIF 2 : 44.1kHz0.0% TDIF 3 : Unusable ADAT : 44.1kHz+1.0% SLOT 1 : 48kHz+0.2% SLOT 2 : Unusable Press ENTER to continue.	Results of performing a word sync check.
✖	Clock Info: WORD No signal Press ENTER to continue.	A clock source has been selected, but no signal is present.
✖	Clock Info: Digital In1 C-bit : Illegal data. Press ENTER to continue.	Shown when badly-formed digital audio is received at one of the DIGITAL INs.
✔	Clock Info: INTERNAL Fs: 44.1kHz Press ENTER to confirm, or a cursor key to cancel.	A valid clock source has been selected.
✖	Clock Info: Digital In1 Fs mode : Not indicated Check D-IN MANUAL SETUP Press ENTER to continue.	An attempt is made to use a clock source, but the sampling frequency cannot be determined.
✖	Clock Info: WORD New clock source is out of range. Master clock is unchaged. Press ENTER to continue.	A clock source has been changed, but the new clock is out of the permissible range.
✔	COMP/EXP Library BANK a-bbb Name : TASCAM DATA Create data: DEC/15/2004 20: 35: 45 Project Name: PROJECT ORCA Project FS: 44.1kHz Press ENTER to continue.	Information about a library entry (compressor/expander).
✔	COMP/EXP Library Preset a-bbb Name : TASCAM DATA Press ENTER to continue.	Information about a library preset entry (compressor/expander).
✖	COMP/EXP Library Preset 1-bbb is Read-only!	An attempt has been made to store to a protected library entry (compressor/expander).
●	COMP/EXP Library Bank a-bbb recalled.	A library entry has been recalled (compressor/expander).
●	COMP/EXP Library Preset 1-bbb recalled.	A library preset entry has been recalled (compressor/expander).
●	Completed.	The selected operation (e.g. format or creation of project) has been completed successfully
✔	Confirm LIST Auto Detect? Press ENTER to confirm, or a cursor key to cancel.	Confirming the auto-detection of machine control list
✔	Confirm TRA Auto Detect? Press ENTER to confirm, or a cursor key to cancel.	Confirming the auto-detection of transport control mapping.

Table 9.2: Popup messages

Action	Message	Meaning
✔	Copy from Ch2 Automation configuration	Confirmation when copying automation configuration.
✔	Copy OK? Press ENTER to confirm, or a cursor key to cancel.	Confirmation when performing a parameter copy operation.
✔	Copy to xxxx fader level Press ENTER to confirm, or a cursor key to cancel	Confirmation when copying fader levels. xxxx may be ALL, ALL MASTER, Aux 1-8, groups of 8 busses, or groups of 8 channels.
●	Copy was completed.	Popup message on completion of copy operation.
✔	Create project? Press ENTER to confirm, or a cursor key to cancel.	Confirming creation of a project.
●	Creating project. Do not remove the CF card.	Warning not to remove CF card during project completion.
✖	Current Data Initialized. Fs has changed. Mixer will reboot. Press ENTER to confirm, or a cursor key to cancel.	Notice to restart the DM-3200 following a change of reinitialization and sampling frequency
✖	Current Data initialized. Fs has changed. Mixer will reboot. Press ENTER to confirm or a cursor key to cancel.	Notice to restart the DM-3200 following a change of sampling frequency.
●	Data change was applied.	Date and time have been changed.
●	Data has not been changed.	Date and time have not been changed
✖	Device is not active.	A device selected for transport control is not active.
✖	Digital In1: Error Not audio signal Press ENTER to continue.	The DIGITAL IN audio source is not providing digital audio data.
✖	Digital In1: Error Not audio signal Source Fs unlocked Press ENTER to continue.	The DIGITAL IN clock source is not providing digital audio data, and the sync clock is now unlocked.
✖	Digital In1: Error Source Fs unlocked Press ENTER to continue.	The DIGITAL IN clock source has experienced an error, and the sync clock is now unlocked.
✖	Digital INPUT1 : Fs convert On Can't select master clock. Press ENTER to continue.	It is not possible to use a source as a word clock when sampling frequency conversion is turned on.
✔	DIGITAL TRIM Update setup? Press ENTER to confirm, or a cursor key to cancel	Confirmation that the digital trim values are to be updated.
✖	Effect Preset a-bbb is Read-only!	An attempt has been made to store to a protected library entry (effect).
●	Effect Bank a-bbb recalled To Effectx	A library entry has been recalled (effect).

Table 9.2: Popup messages

Action	Message	Meaning
✔	Effect BANK a-bbb Name : TASCAM DATA Effect Type: TASCAM Delay Create data: DEC/15/2004 20:35:45 Project Name: PROJECT ORCA Project FS: 44.1kHz Press ENTER to continue.	Information about a library entry (compressor/expander)
●	Effect Preset 1-bbb recalled To Effectx	A library preset entry has been recalled (effect).
●	Effectx redo completed.	Shown when undoing or redoing effect library operations.
●	Effectx undo completed.	
●	EQ Library Bank a-bbb recalled.	A library entry has been recalled (EQ).
✖	EQ Library Preset 1-bbb is Read-only!	An attempt has been made to store to a protected library entry (EQ).
●	EQ Library Preset 1-bbb recalled.	A library entry has been recalled (EQ).
✔	EQ Library Preset a-bbb Name : TASCAM DATA Press ENTER to continue.	Information about a library preset entry (EQ).
✔	EQ Library BANK a-bbb Name : TASCAM DATA Create data : DEC/15/2004 20: 35: 45 Project Name: PROJECT ORCA Project FS: 44.1kHz Press ENTER to continue.	Information about a library entry (EQ).
✔	Format CF Card? All data on the card will be deleted. Press ENTER to confirm, or a cursor key to cancel.	Confirmation before formatting a CF card.
✔	Format CF Card? Press ENTER to confirm, or a cursor key to cancel.	
✔	Format failed. Retry? Press ENTER to confirm, or a cursor key to cancel.	A CF card format operation has failed.
●	Formatting now. Please do not turn off power while formatting.	Warning not to remove power while card is being formatted.
✖	Fs has changed. Mixer will reboot. Press ENTER to confirm or a cursor key to cancel.	Notice to restart the DM-3200 following a change of sampling frequency.
✔	GATE Library Preset a-bbb Name : TASCAM DATA Press ENTER to continue.	Information about a library preset entry (gate).
●	GATE Library Bank a-bbb recalled.	A library entry has been recalled (gate).
✖	GATE Library Preset 1-bbb is Read-only!	An attempt has been made to store to a protected library entry (EQ).
●	GATE Library Preset a-bbb recalled.	A library preset entry has been recalled (gate).

Table 9.2: Popup messages

Action	Message	Meaning
✔	GATE Library BANK a-bbb Name : TASCAM DATA Create data: DEC/15/2004 20: 35: 45 Project Name: PROJECT ORCA Project FS: 44.1kHz Press ENTER to continue.	Information about a library entry (gate).
●	Group x is not grouped.	A group does not exist to be used as a grouping layer.
✔	Grouping Link (Mute ->Fader) Press ENTER to confirm, or a cursor key to cancel.	Confirmation that mute groups should be linked to fader groups.
✔	Grouping Link (Fader ->Mute) Press ENTER to confirm, or a cursor key to cancel.	Confirmation that fader groups should be linked to mute groups.
✔	Invert source ? Press ENTER to confirm, or a cursor key to cancel.	Confirmation when changing between Input and Return sources.
✔	Invert source CHxx-CHxx? Press ENTER to confirm, or a cursor key to cancel.	Confirmation when making a batch change between Input and Return sources.
●	Loading project. Do not remove the CF card.	Warning not to remove the card while a project is loading.
✔	Master DELAY Time Update setup? Press ENTER to confirm, or a cursor key to cancel	Confirmation that the delay values are to be updated.
✔	MC Transport Maps 0 : MMC open ID=120 1 : MTC Generate 2 : None 3 : None 4 : None 5 : None 6 : None 7 : None 8 : None 9 : None Press ENTER.	Current MMC transport maps.
✖	MIDI Ch1 is already assigned. Press ENTER to continue.	Warning that a MIDI channel has already been used for Program Change recall of library entries.
✔	Mixer will mute while checking. OK to continue? Press ENTER to confirm or a cursor key to cancel.	Confirmation that a named digital input source check may change the clock rate, and therefore the audio output is muted during the check.
✔	Name/Memo is 17 or more characters. If name is changed on mixer, it will be shortened to 16 or fewer characters. Press ENTER to confirm, or a cursor key to cancel.	Reminder that stored names and memos must be 16 characters or less in length.
✖	No copy parameter is selected. Press ENTER to continue.	An attempt has been made to copy data, without a parameter's checkbox being selected.
●	Now copying... Do not disconnect CF card.	A copy is being carried out.

Table 9.2: Popup messages

Action	Message	Meaning
✔	OK to Copy? From Project: TASCAM Project 2 xxxxxxxx BANK 1 To Project: TASCAM Project xxxxxxxxx BANK1 Press ENTER to confirm, or a cursor key to cancel.	Conformation that a library bank (EQ, snapshot, etc.) can be copied from one project to another.
✔	OK to Copy? From Project: TASCAM Project 2 Snapshot Bank a-bbb To Project: TASCAM Project Snapshot Bank c-ddd Press ENTER to confirm, or a cursor key to cancel.	Conformation that a library entry (EQ, snapshot, etc. can be copied from one project to another
✔	OK to Copy? From Project: TASCAM Project 2 Snapshot Preset 1 To Project: TASCAM Project Snapshot Bank c Press ENTER to confirm, or a cursor key to cancel.	Conformation that a library bank can be copied from the preset bank to a project bank.
✔	OK to delete automation file [File Name] Press ENTER to confirm, or a cursor key to cancel.	Confirmation about the deletion of an automation file.
✔	OK to Delete xxxxxx Bank a-bbb Press ENTER to confirm, or a cursor key to cancel.	Confirmation before deleting data.
✔	OK to Overwrite Automation data [PROJECT DM3200#0] Press ENTER to confirm, or a cursor key to cancel	Confirmation before overwriting automation data (keep confirmation).
✔	OK to Overwrite Automation File [File name] Press ENTER to confirm, or a cursor key to cancel.	Confirmation before overwriting automation data.
✔	OK to Overwrite Effect Bank a-bbb from Effectx Press ENTER to confirm, or a cursor key to cancel.	Confirmation before overwriting effect library item from x (either effect 1 or effect 2).
✔	OK to Overwrite Snapshot Bank a-bbb Press ENTER to confirm, or a cursor key to cancel.	Confirmation before overwriting a snapshot library entry.
✔	OK to Overwrite Transport Map? Press ENTER to confirm, or a cursor key to cancel.	Confirmation shown when replacing the current transport control map.
✔	OK to Overwrite xxx Library BANK a-bbb from Cgy? Press ENTER to confirm, or a cursor key to cancel.	Confirmation before overwriting a gate or compressor/expander or EQ library item (xxx) from the selected channel (y).

Table 9.2: Popup messages

Action	Message	Meaning
✔	Paste Buffer data to Chx? Press ENTER to confirm, or a cursor key to cancel.	Confirmation shown before pasting copied configuration data to a channel.
✔	Paste Ch2 Automation configuration.	Confirmation shown before pasting copied automation configuration data to a channel.
✔	Program Change Table OK to perform Batch Setup? Press ENTER to confirm, or a cursor key to cancel.	Confirmation shown before making a batch change to the Program Change table.
✔	Project data and resume data are different. The project data is loaded ENTER key : from internal memory. CURSOR key : from CF card.	Shown on power-up. Data has been changed since the project was saved; should this changed data be loaded?
✔	Recall Automation data? Current data will be erased. Press ENTER to confirm, or a cursor key to cancel.	Confirmation that loading the selected automation data will overwrite the existing data
✔	Re-assign fader grouping layer? Press ENTER to confirm, or a cursor key to cancel.	Confirmation when re-assigning a grouping layer master
✔	Re-assign fader grouping? Press ENTER to confirm, or a cursor key to cancel.	Confirmation when re-assigning a fader group master
✔	Re-assign fader (mute) group? Press ENTER to confirm, or a cursor key to cancel.	Confirmation when changing a setting
●	Snapshot BANK a-bbb Recalled.	Successful recall of snapshot data
✔	SELECT xxxx MODE Press ENTER to confirm, or a cursor key to cancel	Confirmation that the surround mode will change (to STEREO, 5.1, 6.1 or LRCS).
✔	Shut down? Press ENTER to confirm, or a cursor key to cancel.	Confirmation of shutdown (after pressing SHIFT+CTRL+ALT)
✔	Shutdown was not performed correctly last time. The project data is loaded: ENTER key : from internal memory Cursor key : from CF card.	On power-up — a shutdown was not performed properly. Should data changed after the project was last stored be loaded?
✔	Signal info : Digital out1 Format : AES/EBU Contents : Audio Emphasis : On Channel Mode : Stereo FS : 44.1kHz Word Length : 24bit Press ENTER to continue.	Detail information popup for digital audio output
✔	Signal info : Slot1 AES3 Card INPUT LINE1 Format : AES/EBU Contents : Audio Emphasis : None Channel Mode : Stereo FS : 44.1kHz Word Length : 24bit Press ENTER to continue.	Detail information popup for digital audio I/O (AES card)

Table 9.2: Popup messages

Action	Message	Meaning
✖	Signal info : Digital In1 No signal Press ENTER to continue.	No signal received at a digital input when detail is requested
✔	Signal info : TDIF1 Input Rx mode : Double-line Fs : 192kHz Word Length : 24bit Emphasis : None Output Tx mode : Normal FS : 44.1kHz Word Length : 24bit Emphasis : No Press ENTER to continue.	Detail information popup for digital audio I/O (TDIF)
✖	Slot AES3 Card INPUT LINE1 Error Not audio signal Press ENTER to continue.	Digital audio data error from AES card (non-audio data).
✖	Slot AES3 Card INPUT LINE1 Error Source Fs unlocked Not audio signal Press ENTER to continue.	Digital audio data error from AES card (non-audio data has caused loss of word sync).
✖	Slot AES3 Card INPUT LINE1 Error Source Fs unlocked Press ENTER to continue.	Digital audio data error from AES card (loss of word sync).
✔	Snapshot BANK a-bbb Name : TASCAM DATA Xtion Time : 9.9ms Create data : DEC/15/2004 20: 35: 45 Project Name : PROJECT ORCA Project FS : 44.1kHz Press ENTER to continue.	Information on a snapshot.
✔	Snapshot Preset 1-bbb NAME : TASCAM DATA Press ENTER to continue.	Information on a preset snapshot.
●	Snapshot redo completed.	A snapshot redo operation is complete.
●	Snapshot undo completed.	A snapshot undo is complete.
●	Snapshot Bank a-bbb recalled.	A snapshot has been recalled.
●	Snapshot Preset 1-bbb recalled	A snapshot preset has been recalled.
✔	Source Invert Ch1-Ch8 Press ENTER to confirm, or a cursor key to cancel.	Confirmation of bulk change of input from input to return (or vice versa).
✖	Snapshot Preset 1-bbb is Read-only!	An attempt has been made to overwrite or delete a preset snapshot.
✖	STEREO to AUX1-2 is assigned Press ENTER to continue.	Stereo buss is assigned to Aux 1-2.
●	Stored to EFFECT Library BANK a-bbb	Stored an effect library entry.
●	Stored to xxxx Library BANK a-bbb from CHx.	Stored a library entry where xxxx is EQ, gate or compressor/expander from the selected channel.

Table 9.2: Popup messages

Action	Message	Meaning
●	Stored to Snapshot Bank a-bbb	Stored a snapshot.
✔	The last stored project cannot be found. Create project? Press ENTER to confirm, or a cursor key to cancel.	At power-on, the last stored project cannot be found (maybe the card has been changed).
✔	The current project is changed. Store current project? ENTER key : Store and Create CURSOR key : Create	Changes have been made to the current project before a project creation.
✖	The project name has not been input.	An attempt has been made to create a project without giving it a name.
✖	There is no project loaded.	When storing, no project is currently loaded, so the data can't be stored.
✖	This name is already assigned.	The name of the newly-created project already exists on the card as a project name.
✖	This project is the current project Can't change.	The current project cannot be renamed
✖	This project is protected.	The project to be renamed is protected
✖	Timecode running!	An attempt has been made to create a project, etc. while timecode is still running. Stop the timecode and try again.
✔	The current project is not on the CF card. Store the current project? Cannot copy automation data and library data ENTER key : Store and Create CURSOR key : Create	Confirmation that the current project should be stored on the card (it is not already there). Automation and library data will not be stored.
●	Turn off power now. Press ALT + STOP + PLAY to reboot.	The shutdown process is now complete, and the power can be turned off, or the DM-3200 can be rebooted.

Table 9.2: Popup messages

Block diagram

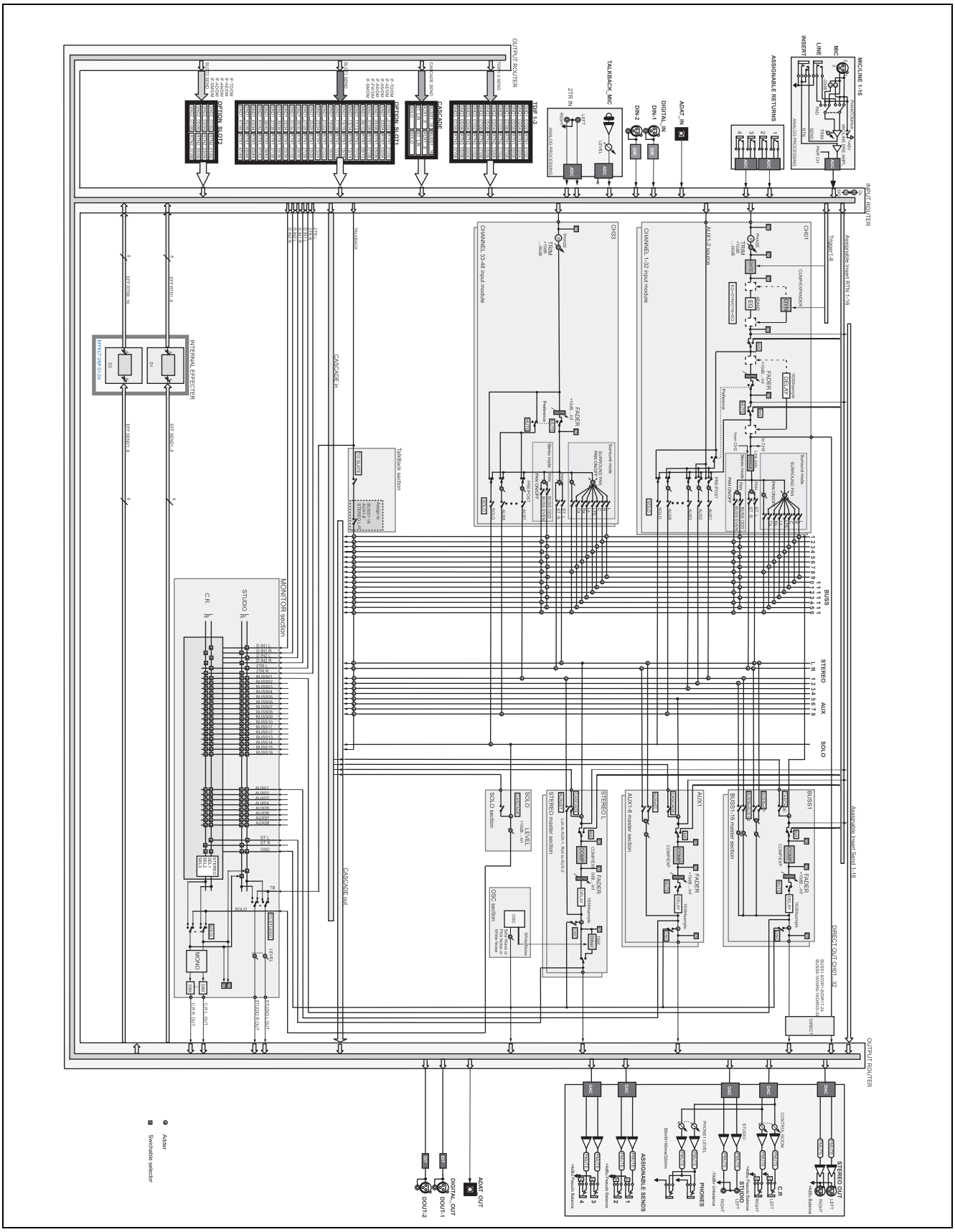


Figure 9.3: Block diagram

Level diagram

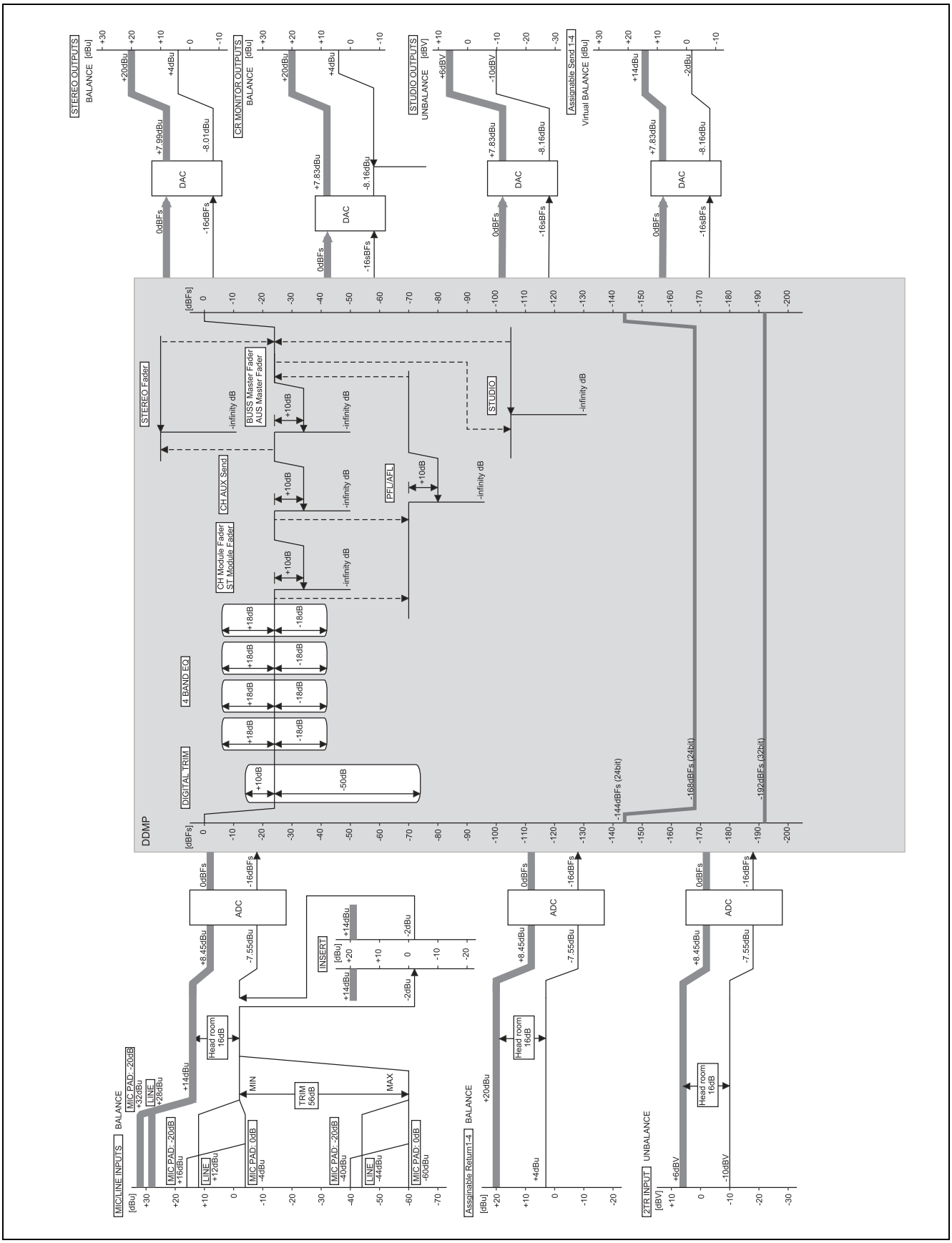


Figure 9.4: Level diagram

Notes

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